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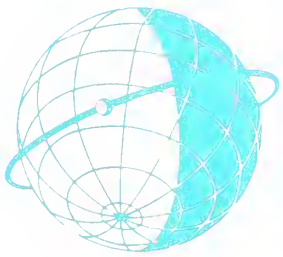
WORLD DATA CENTER A
Oceanography



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CATALOGUE OF DATA
CHANGE NOTICE NOS. 50 AND 51

Including
CATALOGUE OF PRE-IGY DATA

WDCA-OC-93-3

World Data Centers conduct international exchange of geophysical observations in accordance with the principles set forth by the International Council of Scientific Unions. WDC-A is established in the United States under the auspices of the National Academy of Sciences.

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WORLD DATA CENTER A
Oceanography

CATALOGUE OF DATA

CHANGE NOTICE NOS. 50 AND 51
(1 JANUARY- 31 DECEMBER 1992)

Including

CATALOGUE OF PRE-IGY DATA

WORLD DATA CENTER A
Oceanography
Washington, D.C.

ABSTRACT

This change notice lists and describes all data received by WDC-A, Oceanography during the period 1 January - 31 December 1992. It supplements the original six-volume Catalogue of Data, which includes Change Notice Nos. 1-16. The types of data catalogued include oceanographic station data, bathythermograph data, current measurements, biological observations, meteorological observations, and sea surface measurements. An Alphabetical Index of ship names and a Geographical Index of ocean areas assist the user in selecting the required data. Publications are cross referenced by accession number with the WDC-A Catalogue of Accessioned Publications. Also included in this Change Notice is a one-time only Catalogue of Pre-IGY Data.

NOTE: Country identification numbers used in this publication do not necessarily reflect recent realignments of nations' territorial boundaries and political subdivisions.

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WORLD DATA CENTER A

World Data Center A consists of the Coordination Office and twelve subcenters:

World Data Center A,
Coordination Office
National Academy of Sciences
2101 Constitution Avenue, N.W.
Washington, D.C. 20418, U.S.A.

Telephone: (202) 334-3368

GLACIOLOGY (SNOW AND ICE):

WDC-A, Glaciology
Cooperative Institute for
Research in Environmental
Sciences
University of Colorado
Boulder, Colorado 80309, U.S.A.

Telephone: (303) 492-5171

METEOROLOGY (AND NUCLEAR RADIATION):

WDC-A, Meteorology
National Climatic Data Center
NOAA
Federal Building
Asheville
North Carolina 28801, U.S.A.

Telephone: (704) 271-4800

ROTATION OF THE EARTH:

WDC-A, Rotation of the Earth
U.S. Naval Observatory
Washington, D.C. 20390, U.S.A.

Telephone: (202) 653-0066

OCEANOGRAPHY:

WDC-A, Oceanography
National Oceanic and
Atmospheric Administration
Washington, D.C. 20235, U.S.A.

Telephone: (202) 606-4571
FAX: (202) 606-4586

ROCKETS AND SATELLITES:

WDC-A, Rockets and Satellites
National Space Science Data
Center
Goddard Space Flight Center
NASA, Code 633.4
Greenbelt, Maryland 20771
U.S.A.

Telephone: (301) 286-6695

SEISMOLOGY:

WDC-A, Seismology
U.S. Geological Survey, MS-967
Box 25046
Denver Federal Center
Denver, Colorado 80225, U.S.A.

Telephone: (303) 273-8500

SOLID EARTH GEOPHYSICS (TSUNAMIS, GRAVIMETRY, EARTH TIDES, RECENT MOVEMENTS OF THE EARTH'S CRUST, MAGNETIC MEASUREMENTS, PALEOMAGNETISM AND ARCHEOMAGNETISM, VOLCANOLOGY, GEOTHERMICS):

WDC-A, Solid-Earth Geophysics
NOAA, E/GC1
325 Broadway
Boulder, Colorado 80303, U.S.A.

Telephone: (303) 497-6521
FTS 320-6521

MARINE GEOLOGY AND GEOPHYSICS (GRAVITY, MAGNETICS, BATHYMETRY, SEISMIC PROFILES, MARINE SEDIMENTS AND ROCK ANALYSIS):

WDC-A, Marine Geology and Geophysics
NOAA, E/GC3
325 Broadway
Boulder, Colorado 80303, U.S.A.

Telephone: (303) 497-6487
FTS 320-6487

ATMOSPHERIC TRACE GASES:

WDC-A, Atmospheric Trace Gases
Carbon Dioxide Information Analysis Center
Oak Ridge National Laboratory
Oak Ridge, Tennessee 37831
U.S.A.

Telephone: (615) 574-7817

SOLAR-TERRESTRIAL PHYSICS (SOLAR AND INTERPLANETARY PHENOMENA, IONOSPHERIC PHENOMENA, FLARE-ASSOCIATED EVENTS, GEOMAGNETIC VARIATIONS, MAGNETOSPHERIC AND INTER-PLANETARY MAGNETIC PHENOMENA, AURORA, COSMIC RAYS, AIRGLOW):

WDC-A, Solar-Terrestrial Physics
NOAA, E/GC2
325 Broadway
Boulder, Colorado 80303, U.S.A.

Telephone: (303) 497-6323
FTS 320-6323

REMOTELY SENSED LAND DATA:

WDC-A, Remotely Sensed Land Data
U.S. Geological Survey
EROS Data Center
Sioux Falls
South Dakota 57198, U.S.A.

Telephone: (605) 594-6142

PALEOCLIMATOLOGY:

WDC-A, Paleoclimatology
National Geophysical Data Center
Code E/GC
325 Broadway
Boulder, Colorado 80303, U.S.A.

Telephone: (303) 497-6172

PREFACE

The six-volume Catalogue of Data and the loose-leaf Change Notice Numbers 1-16, which have been integrated into the Catalogue, list all oceanographic data received by World Data Center A, Oceanography, from July 1957 through June 1975. The Catalogue has a loose-leaf arrangement of sheets, which have been punched for standard three-ring binders. It includes station location charts for many cruises.

Beginning with Change Notice No. 17, each Change Notice is printed in a modified format as a separate, bound publication describing all data received during a particular six-month or one-year period. The six-volume Catalogue of Data, including Change Notice Nos. 1-16, continues to serve as a reference volume for data received from July 1957 through June 1975. Provision has been made in the modified format for correlating newly received data for a particular cruise with data previously received for that same cruise and already described in a prior Change Notice.

The capability for identifying those data, which have been machine-processed by a national, regional, or responsible national oceanographic data center, has been retained in the modified catalogue format. In addition, this format provides a column for listing the catalogue number from the WDC-A, Oceanography, Catalogue of Accessioned Publications, thus identifying the published report in which the referenced data appear.

Prior to this year, data gathered before the beginning of the IGY in 1957 had not been extensively accessioned by World Data Center A, Oceanography. Recently, however, international bodies, such as the IOC/IODE's Group of Experts on RNODCs and Global Programs have called for WDCs, Oceanography to accession as much historical data as possible, in order to augment the data bases required for support of Climate Research and Global Change Programs. Thus, the acquisition of pre-IGY, as well as post-IGY data, has become a high priority goal for WDC-A. This Change Notice contains a Catalogue of Pre-IGY Data (Part V) recently accessioned by WDC-A and available in automated form to requesters in the international oceanographic community.

WDC-A, Oceanography, welcomes suggestions for improved ways to present information in the Change Notices to the Catalogue of Data. It will make every effort to promptly correct any cataloguing error or omission brought to its attention.

INTRODUCTION

The World Data Center system was established in 1957 to collect data from the numerous and widespread observational programs of the International Geophysical Year (IGY) under the principles set forth by the International Council of Scientific Unions (ICSU) and to make such data readily accessible for an indefinite period of time to interested scientists and scholars. The system consists of World Data Center A (WDC-A) located in the U.S.A.; WDC-B located in the U.S.S.R.; WDC-C located in Western Europe and Japan; and WDC-D located in the People's Republic of China. WDC-A is established under the auspices of the U.S. National Academy of Sciences, where the Coordination Office is located. WDC-A is divided into twelve discipline subcenters whose addresses are given on pages iv and v. These centers are located in institutions which, in the opinion of the Academy, can best serve the interests of science because of their data-handling capabilities for the appropriate scientific disciplines. WDC-A, Oceanography, is collocated with the National Oceanographic Data Center (NODC) in Washington, D.C.

After completion of the IGY program, ICSU delegated the responsibility for the operation of the World Data Centers to its Comite International de Geophysique (CIG) and subsequently to the ICSU Panel on World Data Centres. The framework for continued international exchange of oceanographic data is set forth in ICSU's Guide to the World Data Centre System and the Intergovernmental Oceanographic Commission's (IOC's) Manual on International Oceanographic Data Exchange.

The types of oceanographic data desired for inclusion in the World Data Center system are those from international cooperative expeditions, Global Change and Climate Research Programs, and those associated with various countries' National Oceanographic Programs (NOPs). Data are to be exchanged internationally in accordance with provisions of the IOC's Manual and the ICSU Guide. Lists of National Oceanographic Programs (NOPs) are compiled by various national committees on oceanography and submitted to the Intergovernmental Oceanographic Commission for dissemination to the international oceanographic community.

Contributors of oceanographic data to the World Data Center system and national committees on oceanography are urged to compare the Catalogue of Data with lists of NOPs published in IOC information documents to determine whether the cruises actually completed agree with those listed and to ensure that the data resulting from them are transmitted to the World Data Centers in the manner prescribed by the IOC Manual and the ICSU Guide. Data need not be limited to those represented by NOPs; WDC-A, Oceanography, welcomes additional data that fall within the framework of the ICSU Guide and the IOC Manual and that contributors may wish to include in the World Data Center system.

HOW TO USE THE CHANGE NOTICE TO THE CATALOGUE OF DATA

Catalogue Numbering System

The catalogue numbering system uses groups of numbers and letters to designate identifying references for purposes of data archiving and retrieval. A catalogue number consists of numerals for the assigned: series, country, institution, ship and cruise.

Series — The catalogue numbering system is divided into basic groups called series. At present, these consist of the 100 series for data from ships and other mobile platforms and the 200 series for data from shore and fixed stations in the following categories:

a. Coastal and island stations.
b. Near shore manned stations; i.e., lightvessels and platforms.
c. Offshore manned stations; i.e., ocean weather ships.
d. Unmanned stations; i.e., automatic buoys.
e. Stations on shipping routes.
f. Offshore reference stations visited regularly.
g. Cables in use for oceanographic observations.
h. Repetitive drifting observations; i.e., ice islands, drifting buoys.

Country — A list in the Indexes section includes all countries and institutions from which this Center has received data during this period together with their discrete identifying numbers. The series and two-digit country number comprise the first three digits of the catalogue number.

Example: For country number 1, Argentina, data from ships and mobile platforms are catalogued as 101, and data from shore and fixed stations as 201.

NOTE: The designations of countries used in this catalogue do not imply the expression of any opinion whatsoever on the part of this Center concerning the legal status of any country or territory, or of its authorities, or concerning the delineation of the frontiers of any country or territory.

Institution — An institution which contributed data, either directly or through its designated national agency or national, regional or specialized oceanographic data center, is assigned a decimal number following the series/country number.

Example: The number 101.01 is assigned to data taken by ships and mobile platforms and received from the Argentine Servicio de Hidrografia Naval, and the number 201.01 is assigned to data taken at shore and fixed stations and received from the same institution.

Ship — Each ship, or in some instances a group of ships operating together, is assigned a letter following the series/country/institution number. The letter is followed by a number assigned to the particular cruise as the data are received.

NOTE: The term "cruise" is used in this catalogue to define, whenever possible, the beginning and ending dates of a series of data collected by a ship, usually identified by the contributing institution with a cruise name and/or number. Sometimes it is necessary to group together several series of data from one or more ships under one catalogue number.

Example: The first cruise data received from the Argentine Servicio de Hidrografia Naval are from the ship CAPITAN CANEPA, which is assigned the letter A, followed by the number 01, thus A-01; the second cruise is A-02, the third A-03, etc. Thus, the catalogue numbers 101.01 A-01, A-02, A-03, etc.

A similar system is used in the 200-series for ships but is not applied to lightvessels and fixed shore stations; for the latter the ship/cruise identifier is omitted. For these categories, the series/country/institution numbers are given, but the lightvessel's or station's name must be added instead of the ship/cruise number to complete the catalogue identification.

Example: The Canadian station at Triple Island is identified as: 206.03 Triple Island.

A shore station is listed under the country in or near whose territory it is located. If observations are carried out and the data contributed by an institution of another country, the observing country's name and institution are listed after the name of the country of location.

How to Use the Alphabetical Index

1. Look up the name of the ship or fixed station in the Alphabetical Index where the related country/institution/ship catalogue numbers are listed.

2. Look up, under the respective countries, the indicated Catalogue Numbers.

How to Use the Geographical Index

1. Obtain the geographic area number and name from the Geographical Index Charts.

2. Look up the list of catalogue numbers of available data for the area in

the Geographical Index.

3. Use these catalogue numbers to locate information about the types and amount of data available.

How to Obtain Data from WDC-A, Oceanography

When communicating with the Center for additional information concerning data, always refer to the specific catalogue numbers for data of interest to you. The catalogue numbers are designed to speed the identification and retrieval of the information or data you need.

Address all correspondence to:

Director, World Data Center A, Oceanography
National Oceanic and Atmospheric Administration
Washington, D.C. 20235, U.S.A.

If you telephone, the area code is 202.

The Director's number is 606-4507.
The Associate Director's number is 606-4571.
The Data Archives number is 606-4571.

If you wish to visit the Center, its office hours are from 6:30 a.m. to 4:00 p.m., Monday through Friday. The Center is not open on Saturdays, Sundays, and U.S. national holidays. If you wish the use of study space, you should, if possible, give the Center a day or two advance notice so that necessary arrangements can be made. There is no charge for the use of study space.

Data Exchange Policy of World Data Center A, Oceanography

World Data Centers are held responsible for the provision of data and information to qualified requesters in the scientific community either in exchange or at a cost not to exceed that of processing and shipping. Unless a requester specifies otherwise, the Center is responsible for using the method which most satisfactorily reproduces the data or information item at the least cost. For certain types of requests, limitations in funding, personnel, or facilities may preclude direct or free provision of data or information by the World Data Center.

Data exchanges between WDC-A, Oceanography and WDC's in the same discipline usually take place without charge for routine exchanges of mutually agreed-upon types of data received by WDC-A in internationally-approved data exchange formats and in readily reproducible media forms. Non-standard data types are not normally exchanged. The ICSU Panel has now recognized that it is

not always economically feasible to copy large data sets from one WDC to another. For certain types of data, the exchange of inventories of available data in a WDC subcenter may be considered acceptable in lieu of the transfer of the actual data sets.

In general, reasonably-sized requests from national or regional contributors to WDC-A, Oceanography may be considered as exchange, and equivalent data thus provided to the requester without charge. For requests for unusually large amounts of data, for specially formatted data, for derived data products, or for data to be obtained from outside the WDC system, WDC-A will normally be required to recover the costs of processing and shipping, or, at its discretion, may arrange for the request to be serviced by an RNODC or a regional, national, or disciplinary center. WDC-A may serve as an intermediary or coordinator for requests for unique types of data or data in other disciplines by placing the originator of the request in contact with the appropriate institution or disciplinary center.

Normally, WDC-A, Oceanography considers its data exchange commitment with a cooperating Data Center to be limited to the servicing of those requests or routine updating requirements intended to build or enhance standard data bases operated by that Center for specific, mutually agreed-upon data types and geographical areas of national or scientific interest. If the availability of funding and resources permit, WDC-A also attempts to assist such cooperating Data Centers when they require special data sets for institutions that are performing project-related research for international climate and global change programs and/or that have historically contributed data to WDC-A, Oceanography through that Data Center. WDC-A, Oceanography is obliged, in any case, to follow the exchange and cost recovery policies of its sponsoring (funding) government agency, while attempting to maintain consistency with data exchange guidelines of the ICSU Panel on WDC's as published in the ICSU Guide.

Data and information may be requested from WDC-A, Oceanography through NODCs, Designated National Agencies, or any other organization identified by national or international initiatives as responsible for communication with the World Data Centers. These materials may also be requested directly from WDC-A, Oceanography. Organizations, institutions, or individuals from Member States of the IOC may apply to the IOC Secretariat or UNESCO for possible assistance in funding their projects.

Data Centers or institutions in the international community that have acquired an automated data set or specialized data product from WDC-A must be aware that the original data set may be updated from time to time, errors corrected, or spurious data deleted by the originating data center. Where duplicate data sets are deliberately held in this way, the holder is responsible for making regular contact, as required, with the originating center to check whether the old

data set is still valid, whether it should be deleted, or whether new data are available. WDC-A bears no responsibility in the conduct of these arrangements, except as regards the provision of information in its role as a coordination and referral center.

Acknowledgment of Data Sources

In many instances, data contributed to the Center are unpublished at the time of receipt. Unpublished data can be identified in the Change Notice by the absence of a publication number in the column entitled Data Center Reference Number. Accordingly, as stipulated by the Guide, recipients of copies of such data from the Center are reminded that the rights of the original investigators must always be respected. Thus, it is requested that ***if any data supplied by WDC-A, Oceanography are published, due acknowledgment be made of the institution which undertook the original observations***. To facilitate proper acknowledgment, the Change Notice indicates the originating institution.

PART I

CATALOGUE INDEXES

EXPLANATION OF THE ALPHABETICAL INDEX OF SHIPS AND FIXED STATIONS

This index presents in alphabetical order the names of the ships, lightvessels, platforms, and shore stations that are listed on the Data Information sheets.

Ship or Fixed Station — The name of the ship, lightvessel, platform, lighthouse, shore station, etc. Names of ships and lightvessels are given in capital letters, with lightvessels identified by (LV) after their name. All others not so identified are shore or other types of fixed stations.

Country — The name of the country that used the ship to collect data, or the name of the country in or near whose territory fixed oceanographic station observations were made. If the data were collected by an institution of another country, the contributing country is listed after the one where the observations were taken.

Catalogue Number — The country and institution numbers and ship letter assigned to each ship are given in this column to facilitate locating data information in the catalogue.

EXPLANATION OF THE GEOGRAPHICAL INDEX

The Geographical Index is based on the divisions of areas shown on the three charts immediately preceding the Index. These divisions are defined in "Limits of Oceans and Seas," Special Publication No. 23 of the International Hydrographic Bureau, third edition, Monaco, 1953. To define the extensive areas of the Atlantic, Indian, and Pacific Oceans more specifically, the following subdivisions have been added:

23 - *North Atlantic Ocean*

23a - Northeast Atlantic
23b - Northwest Atlantic

45 - *Indian Ocean*

45a - Northwest Indian
45b - Northeast Indian
45c - Southwest Indian
45d - Southeast Indian

SO - *Southern Oceans*

South of latitude 50° South

32 - *South Atlantic Ocean*

32a - Southeast Atlantic
32b - Southwest Atlantic

57 - *North Pacific Ocean*

57a - Northwest Pacific
57b - Northeast Pacific

61 - *South Pacific Ocean*

61a - Southwest Pacific
61b - Southeast Pacific

The catalogue numbers of ship cruises extending into any of the areas, or shore or fixed stations located in the areas, are listed under the area's number and name.

ALPHABETICAL INDEX

SHIP OR FIXED STATION	COUNTRY	CATALOGUE NUMBER
- A -		
ACT 3	UNITED KINGDOM	138.02 K
ADELAIDE	AUSTRALIA	102.06 A
ALIS	FRANCE	113.07 J
ALMIRANTE IRIZAR	ARGENTINA	101.05 A
ALPHA HELIX	U.S.A.	139.08 S
ANDRE NIZERY	FRANCE	113.03 J
ANRO AUSTRALIA	AUSTRALIA	102.06 A
ATLANTIS II	U.S.A.	139.01 C
AUSTRALIAN	AUSTRALIA	102.06 A
- B -		
BIOMAR I	VENEZUELA	153.03 A
BRISBANE	AUSTRALIA	102.06 A
BURTON ISLAND	U.S.A.	139.16 AA
BUSAN 851	KOREA	143.02 Z
		243.01 C
		243.01 E
BUSAN 852	KOREA	143.02 T
		243.01 C
		243.01 E
- C -		
CANBERRA	AUSTRALIA	102.06 A
CAPE PILLAR	AUSTRALIA	102.06 A
COLUMBUS CANADA	GERMANY	114.01 R
COLUMBUS ISELIN	U.S.A.	139.14 F
COLUMBUS OREGON	GERMANY	114.01 R
COLUMBUS VICTORIA	GERMANY	114.01 R
COLUMBUS WELLINGTON	GERMANY	114.01 R
CORIOLIS	FRANCE	113.03 D
		113.07 J
CRYOS	FRANCE	113.14 G
- D -		
DARWIN	AUSTRALIA	102.06 A
DAVID STARR JORDAN	U.S.A.	139.23 Y
DE STEIGUER	U.S.A.	139.03 V
DERWENT	AUSTRALIA	102.06 A
DEUTSCHE BUCHT (LV)	GERMANY	214.1
DISCOVERER	U.S.A.	139.23 K
DISCOVERY	UNITED KINGDOM	138.05 B
- E -		
ELBE (LV)	GERMANY	214.1
ELLEN B. SCRIPPS	U.S.A.	139.08 M

ALPHABETICAL INDEX

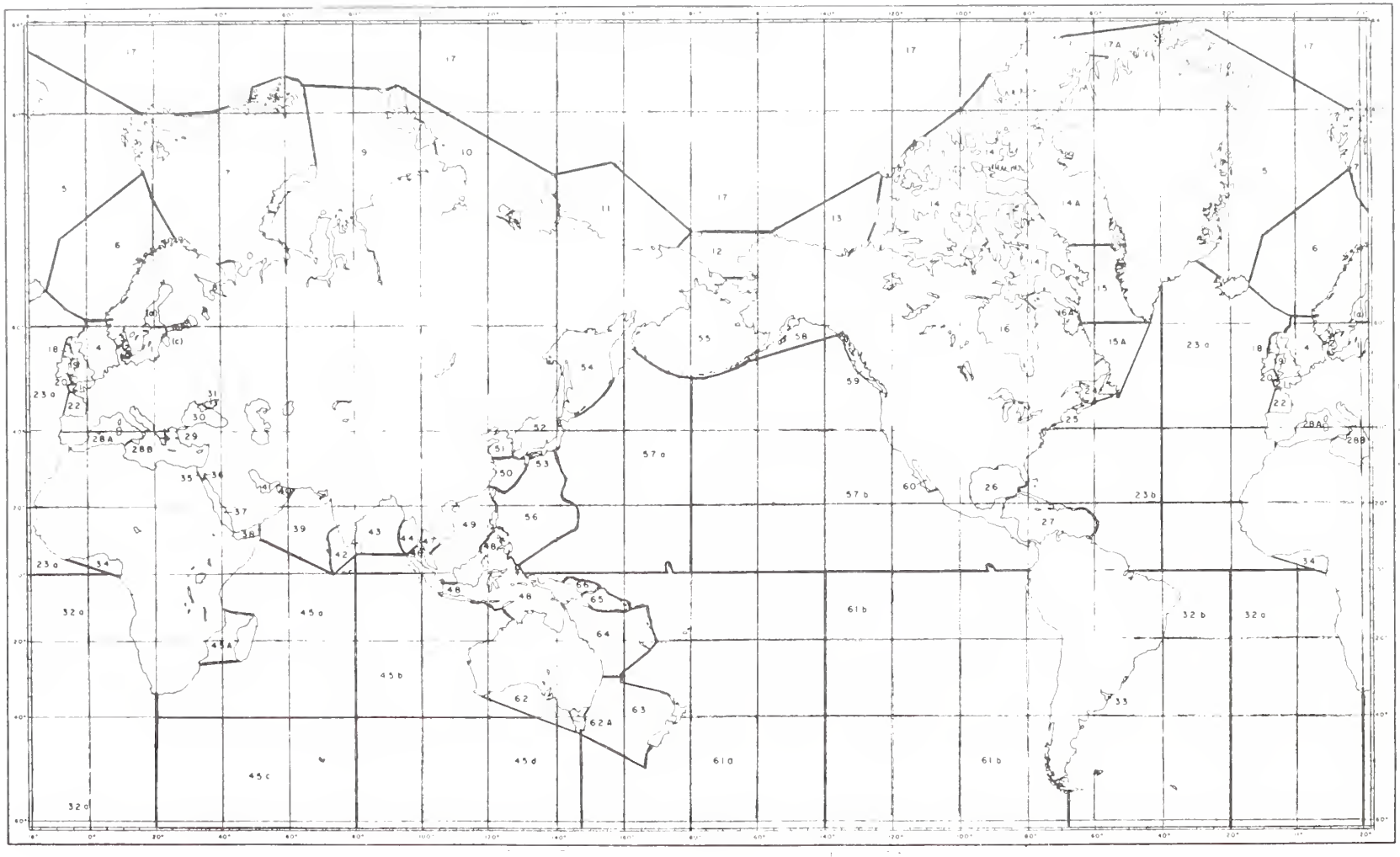
SHIP OR FIXED STATION	COUNTRY	CATALOGUE NUMBER
ENDEAVOR	U.S.A.	139.05 C
- F -		
FARNELLA	UNITED KINGDOM	138.02 K
FEHMARNBELT (LV)	GERMANY	214.1
FORTHBANK	UNITED KINGDOM	138.02 K
- G -		
GANGWON 867	KOREA	143.02 X
		243.01 E
GENERAL SAN MARTIN	ARGENTINA	101.01 B
GLACIER	U.S.A.	139.16 M
GOLFO DE CARIACO	VENEZUELA	153.04 A
GUAIQUERI	VENEZUELA	153.01 A
GYRE	U.S.A.	139.07 H
GYUNGBUK 853	KOREA	143.02 U
- H -		
HAKUHO MARU	JAPAN	124.24 B
HENRY LARSEN	CANADA	106.29 A
HOKUSEI MARU	JAPAN	124.02 C
- I -		
ICEBIRD	GERMANY	114.01 R
INCHEON 866	KOREA	143.02 Y
IRON NEW CASTLE	AUSTRALIA	102.06 A
IRON PACIFIC	AUSTRALIA	102.06 A
IVYBANK	UNITED KINGDOM	138.02 K
- J -		
JEAN CHARCOT	FRANCE	113.14 A
		113.18 C
JEONBUK 868	KOREA	143.02 AA
- K -		
KAKUYO MARU	JAPAN	124.17 B
KATASHIMA MARU	JAPAN	124.13 FFF
Kiel (LH)	GERMANY	214.1
- L -		
LA SALLE	VENEZUELA	153.01 B
LE NOROIT	FRANCE	113.18 D
LE SUROIT	FRANCE	113.07 J
		113.14 E

ALPHABETICAL INDEX

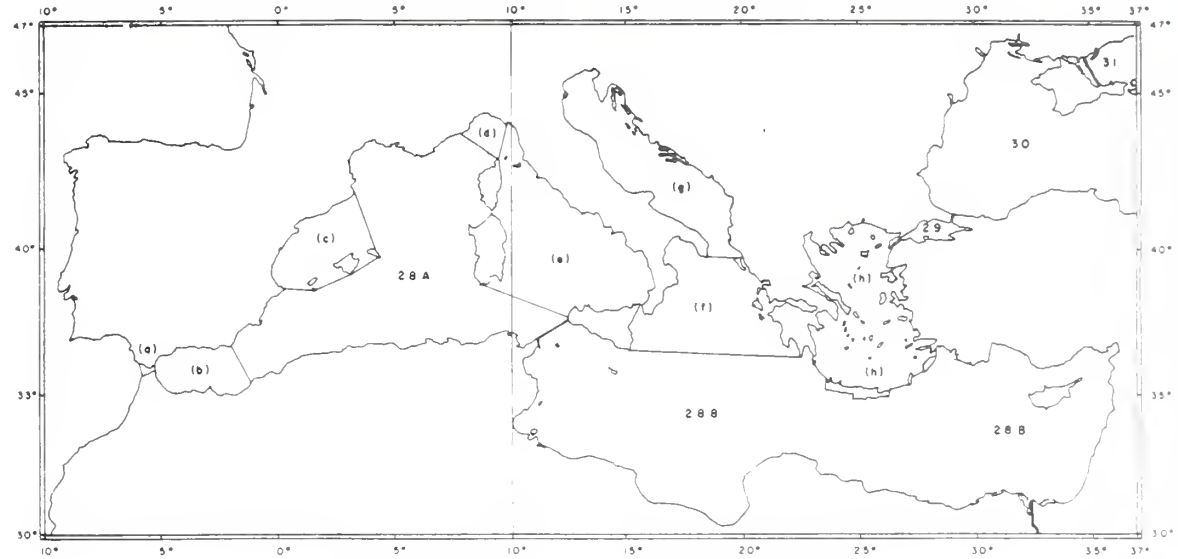
SHIP OR FIXED STATION	COUNTRY	CATALOGUE NUMBER
- M -		
MALCOLM BALDRIDGE	U.S.A.	139.23 CC
MARARA	FRANCE	113.07 J
MARION DUFRESNE	FRANCE	113.07 H
MELBOURNE STAR	UNITED KINGDOM	138.02 K
MELVILLE	U.S.A.	139.08 Q
MILLER FREEMAN	U.S.A.	139.23 X
MOANA WAVE	U.S.A.	139.26 C
- N -		
Neah Bay	U.S.A.	239.02
NEDLLOYD BAHREIN	NETHERLANDS	126.02 B
NEDLLOYD BALTIMORE	NETHERLANDS	126.02 B
NEDLLOYD BANGKOK	NETHERLANDS	126.02 B
NEDLLOYD BARCELONA	NETHERLANDS	126.02 B
NEDLLOYD MADRAS	NETHERLANDS	126.02 B
NEDLLOYD MANILLA	NETHERLANDS	126.02 B
NEW HORIZON	U.S.A.	139.08 V
NIMOS	UNITED KINGDOM	138.02 K
Nordsee (Platform)	GERMANY	214.1
NORTHWIND	U.S.A.	139.16 B
- O -		
Ocean Data Buoys	JAPAN	224.01 A
OCEANOGRAPHER	U.S.A.	139.23 L
OCEANUS	U.S.A.	139.01 L
OSHORO MARU	JAPAN	124.02 B
- P -		
PARRAMATTA	AUSTRALIA	102.06 A
PERTH	AUSTRALIA	102.06 A
- Q -		
QUEENSLAND STAR	UNITED KINGDOM	138.02 K
- R -		
RABELAIS	FRANCE	113.07 J
RACINE	FRANCE	113.07 J
RIMBAUD	FRANCE	113.07 J
RONSARD	FRANCE	113.07 J
- S -		
SEAL ISLAND	NORWAY	128.01 K
SEIFU MARU	JAPAN	124.11 D

ALPHABETICAL INDEX

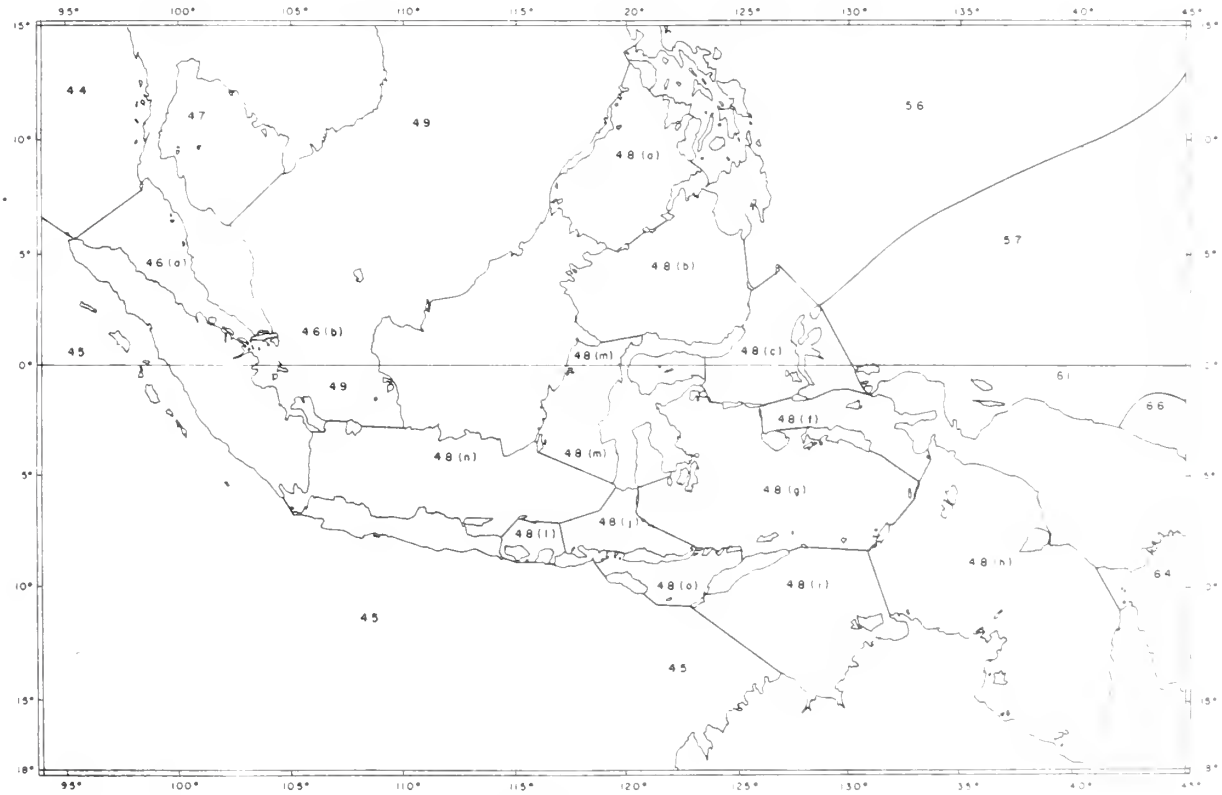
SHIP OR FIXED STATION	COUNTRY	CATALOGUE NUMBER
SEIYO MARU	JAPAN	124.04 D
SHINYO MARU	JAPAN	124.04 B
Ships of Opportunity	U.S.A.	139.23 O
SHIRASE	JAPAN	124.31 B
Shore-Based Party	JAPAN	124.31 A
STUART	AUSTRALIA	102.06 A
SURVEYOR	U.S.A.	139.23 J
SVENJA	GERMANY	114.01 R
SYDNEY	AUSTRALIA	102.06 A
- T -		
T. A. VOYAGER	UNITED KINGDOM	138.02 K
T. G. THOMPSON	U.S.A.	139.04 B
TANGAROA	NEW ZEALAND	127.01 G
THETIS	SWEDEN	135.01 E
THOMAS WASHINGTON	U.S.A.	139.08 N
TORRENS	AUSTRALIA	102.06 A
TW/EMS (LV)	GERMANY	214.1
- U -		
UMITAKA MARU	JAPAN	124.04 A
- V -		
VAUBAN	MALAGASY REPUBLIC	148.01 A
- W -		
WAIKATO	NEW ZEALAND	127.02 A
WEATHERBIRD	U.S.A.	239.13 D
WECOMA	U.S.A.	139.15 E
WELLINGTON	NEW ZEALAND	127.02 A
- X -		
XIANGYANGHONG 14	PEOPLE'S REPUBLIC OF CHINA	173.02 D



WORLD GEOGRAPHICAL INDEX



GEOGRAPHICAL INDEX – DETAILS OF MEDITERRANEAN AREA



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4. BRAZIL
5. BURMA
6. CANADA
7. CHILE
8. COLOMBIA
9. DENMARK
10. ECUADOR
11. FINLAND
12. TAIWAN
13. FRANCE
14. GERMANY
15. GERMANY
16. GHANA
17. GUATEMALA
18. ICELAND
19. INDIA
20. INDONESIA
21. IRELAND
22. ISRAEL
23. ITALY
24. JAPAN
25. MEXICO
26. NETHERLANDS
27. NEW ZEALAND
28. NORWAY
29. PAKISTAN
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33. PORTUGAL
34. SPAIN
35. SWEDEN
36. SOUTH AFRICA
37. RUSSIAN FEDERATION
38. UNITED KINGDOM
39. UNITED STATES OF AMERICA
40. URUGUAY
42. YUGOSLAVIA
43. KOREA (Republic of)
44. IVORY COAST
45. NIGERIA
46. CONGO (People's Republic)
47. MALAYSIA
48. MALAGASY REPUBLIC
49. MOROCCO
50. SENEGAL
51. THAILAND
52. TURKEY
53. VENEZUELA
54. EL SALVADOR
55. COSTA RICA
56. PANAMA
57. HONDURAS
58. DOMINICAN REPUBLIC
59. HAITI
60. CUBA
61. JAMAICA
62. AUSTRIA
63. ROMANIA
64. ARAB REPUBLIC OF EGYPT
65. LEBANON
66. ALGERIA
67. MONACO
68. GREECE
69. TANZANIA
70. SIERRA LEONE
71. TUNISIA
72. TRINIDAD AND TOBAGO
73. PEOPLE'S REPUBLIC OF CHINA
74. CZECHOSLOVAKIA
75. MAURITANIA
76. BULGARIA
77. BENIN
78. PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN
79. IRAQ
80. LIBERIA
81. SINGAPORE

LIST OF DATA CENTER ACRONYMS

AODC	Australian Oceanographic Data Centre
BODC	British Oceanographic Data Centre, United Kingdom
CEADO	Centro Argentino de Datos Oceanograficos
CECOLDO	Centro Colombiano de Datos Oceanograficos
CEDO	Centro Espanol de Datos Oceanograficos
CENADO	Centro Nacional de Datos Oceanograficos, Mexico
CENDOC	Centro Nacional de Datos Oceanograficos de Chile
CNODC	China National Oceanographic Data Center
CNRDO	Centro Nazionale Raccolta Dati Oceanografici, Italy
DOD	Deutsches Ozeanographisches Datenzentrum
ENODC	Egyptian National Oceanographic Data Center
FAOFDC	Food and Agriculture Organization of the United Nations, Fishery Data Centre
ICES	International Council for the Exploration of the Sea
IHO	International Hydrographic Organization
INODC	Indian National Oceanographic Data Center
JODC	Japan Oceanographic Data Center
KODC	Korean Oceanographic Data Center
MARIS	Marine Informatie Service Stichting
MEDS	Marine Environmental Data Service, Canada
NOD	Norsk Oseanografisk Datasenter
NODC	National Oceanographic Data Center, U.S.A.
PSMSL	Permanent Service for Mean Sea Level
SADCO	South African Data Centre for Oceanography
SISMER	Systeme d'Informations Scientifiques pour la Mer

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13 FRANCE	Office de la Recherche Scientifique et Technique Outre-Mer.....	113.03	
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26 NETHERLANDS	Royal Netherlands Navy.....	126.02	
27 NEW ZEALAND	New Zealand Oceanographic Institute....	127.01	
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28 NORWAY	Institute of Marine Research.....	128.01	
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PART II

CATALOGUE

EXPLANATION OF THE WDC-A, OCEANOGRAPHY DATA INFORMATION SHEET

The Change Notice lists on Data Information sheets the data which have been received by this Center. The entries are described below. Countries are arranged in the sequence shown in the numerical list of countries. Data from each country are arranged in the sequence of catalogue numbers. The 200-series data sheets follow the last 100-series data sheet in the catalogue.

Country/Catalogue Number — The series number and two digit number of the contributing country, as well as the identifying number for the data information, are given in this column. Details of the catalogue numbering system are given in the section "How to Use the Change Notice to the Catalogue of Data". The numbers corresponding to the country and institution portions of the Catalogue Number are found in the index section that lists countries and contributing institutions.

Country/Ship or Fixed Station — The country name, as well as the names of ships are printed in capital letters; lightvessels are identified by (LV) following the name. All other names not so designated are those of shore stations and other types of fixed platforms, such as lighthouses (LH) or offshore towers; names are reported as they appear with the data.

Start Date/End Date — The dates during which the data were gathered are given in the order of day/month/year. In some instances, depending on the nature of the project, the dates indicate the beginning and ending of a cruise or expedition, while in others the dates indicate the first and last observations. For shore and fixed stations months and years only are usually given.

Region — The region(s) of the World Ocean where observations were gathered. The areas listed are defined in "Limits of Oceans and Seas," International Hydrographic Bureau, Special Publication No. 23, third edition, Monaco, 1953, with certain modifications as indicated in the Catalogue Indexes section.

Oceanographic Serial Stations:

Number of Stations — The number of oceanographic serial stations (also referred to as hydrographic, hydrographical, hydrological and hydrochemical stations by various authorities) at which serial measurements of temperature, salinity, and other chemical values are made, normally to depths of five meters or greater. Data to depths less than five meters are usually catalogued as Surface Observations. The single dagger symbol (†) is used to denote data obtained by electronic, in-situ, Salinity/Temperature/Depth (STD) or Conductivity/Temperature/ Depth (CTD) sensors.

Physical and Chemical Data — The types of physical and chemical data, available at serial depths as observed and as computed values, are listed using the following symbols and abbreviations:

T - Temperature of the water sample
Cl - Chlorinity
S - Salinity
O_2 - Dissolved oxygen content
CO_2 - Carbon dioxide
pH - Hydrogen ion concentration
Alk - Alkalinity
N - Nitrogen compounds
P - Phosphorous compounds
Si - Silicon compounds
sig-t - Density of the water at T & S in-situ and at atmospheric pressure
SVA - Anomaly of specific volume
TherAnom - Thermosteric anomaly
D - Anomaly of dynamic heights
PE - Potential energy
PT - Potential temperature
Q - Q factor for transport computations
Vs - Speed of sound

NOTE: Chemical compounds may also be indicated by standard chemical symbols.

Sample Depths — The depth, or range of depths, to which the predominant number of samples/casts for that particular cruise were observed. They are recorded to the nearest 100 meters, except when the observations are in water less than 100 meters in depth, in which case they are usually recorded to the nearest 10 meters.

Maximum Depth — The actual depth of the deepest sample/cast for a particular cruise or data set and is not rounded off.

BT's — The type and number of mechanical bathythermograph (MBT) or expendable bathythermograph (XBT) observations are indicated by:

MB - Analog prints of bathythermographs taken by a mechanical BT
MTb - Tables or listings of mechanical BT temperature readings at selected depths
XB - Analog prints of bathythermographs taken by an expendable BT

XTb - Tables or listings of expendable BT temperature readings at selected depths
DTb - Table or listings of digital BT temperature readings at selected depths

Currents — The types and quantity of observations of surface and subsurface currents are indicated by:

Surf - Surface
Subs - Subsurface

Biological — The types of marine biological observations made and the number of stations and/or abundance of data are indicated by any of the following categories:

Phyt - Phytoplankton
Pigm - Pigments
PrPr - Primary productivity
Zoo - Zooplankton
Nek - Nekton
Eggs - Fish eggs and/or larvae
Micr - Microbiological data
Biol - Bioluminescence
Poll - Pollution studies
C14 - Carbon
Surf - Surface visual observations of birds, fishes mammals, reptiles and discolored water
Pleu - Pleuston
Sest - Seston
Neus - Neuston
Bent - Benthos
PeF - Pelagic fishes
DeF - Demersal fishes
FObs - Fishery observations
Bore - Borers and foulers
Cet - Cetacea

Meteorological — The types of meteorological observations taken in conjunction with oceanographic data are indicated by:

Wd - Wind direction and speed
W - Weather
Ta - Temperature of the air, dry bulb
Tw - Temperature of the air, wet bulb
Bar - Atmospheric pressure, barometer
Cld - Clouds
Vis - Visibility
Hum - Humidity
DP - Dew point
Pre - Precipitation
SoRa - Solar radiation
Rad - Radiosonde observations

Sea Surface — The types of sea surface observations and measurements taken are listed. In addition to the abbreviations and symbols listed for Physical

and Chemical Data, the following are also used:

Col - Color of the water
Tra - Transparency of the water
Wa - Visual data on waves, including sea state
IWa - Instrumented wave data
Ice - Data on ice in the sea
LP - Light penetration
LPW - Long period wave records

Data Center Reference Number — Data which have been processed at a national, regional, or responsible oceanographic data center, usually have been assigned some type of identifying reference number by that center. The availability of data in automated form is indicated by the initials of the data center followed by that center's reference number. For example, machine-processed oceanographic station data for Reference Number 310863 of the National Oceanographic Data Center would appear as NODC 310863. As a means of identifying those types of data that have been machine-processed and thus correspond to the Reference Number, the Diamond symbol (◊) is entered in the appropriate columns describing data that are automated under that Reference Number.

Publication number refers to the Catalogue Number from the WDC-A, Oceanography Catalogue of Accessioned Publications Supplement identifying the published report in which the referenced data appear. The absence of a number in this column indicates that the data were not received in published form.

Remarks — Any additional information included to further describe the data. The term "(CAT. OF DATA)" or "(Change)", indicates that data for this listed cruise represent an addition to data previously received by WDC-A, Oceanography, and already described under this Catalogue Number in the Catalogue of Data (including Change Notice Nos. 1-16) or the referenced Change Notice. An asterisk (*) is placed beside each data entry which represents an addition to data catalogued previously; the total number of observations held for this cruise is shown in parentheses ( ) beneath the data entry. Data entries preceded by a minus sign (-) and enclosed in parentheses, e.g. (-9), indicate a deletion of observations. For more extensive explanation of some cruises, the Remarks Section immediately follows the main Catalogue Section in this Change Notice.

NOTE: Track charts showing locations of oceanographic observations are not printed in the Change Notice. If a track chart is available for a particular cruise, that information will be given in the Remarks Section of this Change Notice. WDC-A will gladly provide copies of such track charts upon request.

COUNTRY/ CATALOGUE NUMBER	COUNTRY/ SHIP OR FIXED STATION	START DATE	END DATE	IHB REG.	TYPES OF OBSERVATIONS: OCEANOGRAPHIC SERIAL STATIONS NO. OF STAS.	PHYS. & CHEM. DATA	SAMPLE DEPTHS	MAX. DEPTH	BATHY-THERMO-GRAPH	CURRENTS	BIO-LOGICAL	METEORO-LOGICAL	SEA SURFACE	DATA CENTER REFERENCE NUMBER	REMARKS
101.....	ARGENTINA.....														
101.01 B-20	GENERAL SAN MARTIN	17/11/77	06/03/78	32a 32b SO					XTb-140 ◊			(Wd, W, Ta, Tw, Cld, Bar, Vis) ◊	T ◊	NODC(BT) 069850 thru 069853 CEADO(BT) 0128	Cruise Antarctica 77/78 Recatalogued from 101.5 A-1 (Change 39)
101.05 A-04	ALMIRANTE IRIZAR	24/01/86	27/02/86	32b 61b SO					XTb-94 ◊					NODC (BT) 075295, 075296 CEADO(BT) 0503	Cruise Antarctica 85/86
101.05 A-05	ALMIRANTE IRIZAR	10/01/87	23/03/87	32b SO					XTb-48 ◊					NODC (BT) 075297 thru 075300 CEADO(BT) 0504	Cruise Antarctica 86/87
102.....	AUSTRALIA.....														
102.06 A-28	ANRO AUSTRALIA, AUSTRALIAN, CANBERRA, CAPE PILLAR, DARWIN, DERWENT, IRON NEW CASTLE, PARRAMATTA, STUART, SYDNEY, TORRENS	01/01/89	31/12/89	48 49 56 57a 57b 61a 64					XTb-839 ◊					NODC TOGA PACIFIC DATA BASE	
102.06 A-29	ADELAIDE, ANRO AUSTRALIA, AUSTRALIAN, BRISBANE, CANBERRA, DARWIN, DERWENT, IRON PACIFIC, PARRAMATTA, PERTH, SYDNEY	01/01/90	31/12/90	45b 46a 47 48 49 56 57a 57b 61a 64 65 66					XTb-1,076 ◊					NODC TOGA PACIFIC DATA BASE	
106.....	CANADA.....														
106.29 A-01	HENRY LARSEN	05/09/90	19/09/90	13	104 †	T, S, sig-t, SVA, ΔD, Vs, PT, O2, PO4, NO3, SiO2	10-650	3320						Publication 06.17-173	76 CTD stations
113.....	FRANCE.....														
113.03 D-41	CORIOLIS	15/09/77	20/10/77	64	66	(T, S, sig-t, SVA, ΔD, Vs, O2, PO4, NO2, SiO4, pH) ◊	300-1175	1176						NODC 358347	
113.03 D-42	CORIOLIS	03/02/79	12/07/79	57a 61a 64	127	(T, S, sig-t, SVA, ΔD, Vs, O2, SiO4) ◊	100-1090	1094						NODC 358350, 358352, 358353	Cruises HYDROTHON-3, PEMG SOP I, PEMG SOP II

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113.03 D-43	CORIOLIS	14/08/80	19/09/80	45a	100	(T, S, sig-t, SVA, ΔD, Vs, O2, NO3, SiO4) ◊	40-100	100						NODC 358354	
113.03 D-44	CORIOLIS	31/01/81	26/11/81	61a 64	89	(T, S, sig-t, SVA, ΔD, Vs, O2, NO2, SiO4) ◊	110-1200	1200						NODC 358355, 358357 thru 358360	Cruises HYDROTHON 4, 5, 6; VALTRACOR II, EVA IX ††
113.03 D-45	CORIOLIS	14/03/82	15/03/82	64	5	(T, S, sig-t, SVA, ΔD, Vs) ◊	153-299	299						NODC 358361	Cruise PREFIL I
113.03 D-46	CORIOLIS	28/11/84	12/12/84	32a 34	48	(T, S, sig-t, SVA, ΔD, Vs, O2) ◊	50-526	529						NODC 358373	
113.03 J-04	ANDRE NIZERY	10/02/76	25/04/76	32a	33	(T, S, sig-t, SVA, ΔD, Vs) ◊	30-200	222						NODC 358407, 358408	Cruises NIZ 06-76, 11-76
113.07 H-04	MARION DUFRESNE	25/05/79	07/06/79	39 45a	31 * (62) †									NODC 358385 *	Cruise 18, FOY, SINODE 31 CTD stations (Change 47)
113.07 H-05	MARION DUFRESNE	09/05/80	25/05/80	45a	20 * (40) †		1600-2997	2992						NODC 358389 *	Cruise 22, SINODE II 20 CTD stations (Change 47)
113.07 H-07	MARION DUFRESNE	31/03/86	01/05/86	39 45a		O2, N2, N3, PO4, Si, pH, Ca, CO3 *					Pigm-17 *			Publication 13.26-002 *	Cruise MD49, INDIGO 2 (Change 47)
113.07 H-08	MARION DUFRESNE	14/01/87	13/02/87	32a 45a 45c 45d SO	26 * (99) †	O2, PO4, NO2, NO3, Si, pH *	200-5000	5650			Pigm-21 *			Publication 13.26-003 13.26-004 *	Cruise MD53, INDIGO 3 (Change 47)
113.07 H-12	MARION DUFRESNE	24/02/85	27/03/85	45a 45c SO	67 * (135) †	(PT, O2, PO4, NH3, Si) ◊ *	140-5100	5198			Pigm-23 *			NODC 359174 Publication 13.26-001 *	Cruise MD43, INDIGO 1 (Change 49)
113.07 H-13	MARION DUFRESNE	16/01/85	06/02/85	45c	59 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	490-4226	4273						NODC 358405, 359173	Cruise MD 42, BIOMASS/SIBEX
113.07 H-14	MARION DUFRESNE	16/02/87	30/10/87	28B 32b 45a 45c	90 †	(T, S, sig-t, SVA, ΔD, Vs, O2) ◊	50-4520	4523						NODC 359175 thru 359179 Publication 13.26-003 13.26-004	Cruises SUZAN 2, MD55/8RESIL, T-SINODE 6, TOGA SINODE 27 ††

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113.07 J-05	CORIOLIS, LE SUROIT, RABELAIS, RACINE, RIMBAUD, RONSARD	01/01/89	31/12/89	57a 57b 61a 61b 64 65					XTb-899 ◊					NODC TOGA PACIFIC DATA BASE	
113.07 J-06	ALIS, MARARA, RACINE, RABELAIS, RIMBAUD	01/01/90	31/12/90	57a 57b 61a 61b 64					XTB-732					NODC TOGA PACIFIC DATA BASE	
113.14 A-12	JEAN CHARCOT	23/06/74	25/06/75	23a	7	(T, S, sig-t, SVA, ΔD, Vs, O2) ◊	465-490	490						NODC 358412	
113.14 A-13	JEAN CHARCOT	19/10/80	18/11/80	23a	26 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	4750-5245	5249						NODC 358391	
113.14 A-14	JEAN CHARCOT	20/10/81	15/11/81	23a 28A	63	(T, S, sig-t, SVA, ΔD, Vs, O2, PO4, SiO4) ◊	265-2700	2738						NODC 358411	Cruise MEDIPROD IV
113.14 A-15	JEAN CHARCOT	24/06/83	07/07/83	23a 23b	26 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	3140-4340	4382						NODC 358398	
113.14 E-04	LE SUROIT	10/11/78	01/12/78	22	75 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	18-95	120						NODC 358384	Cruise PHYGAS 78
113.14 G-02	CRYOS	03/07/77	08/07/77	23a	11 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	490-2000	2015						NODC 358380	
113.18 C-02	JEAN CHARCOT	22/04/76	19/07/76	23a	30 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	275-4600	4650						NODC 358378, 358379	
113.18 C-03	JEAN CHARCOT	18/10/77	17/12/77	23a 23b 32a	22 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	900-6000	6021						NODC 358381, 358382	
113.18 D-04	LE NOROIT	09/03/86	11/03/86	23a	5 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	3640-4630	4630						NODC 358406	GASCOR-EPI V
114.....	GERMANY.....														
114.01 R-07	COLUMBUS CANADA, COLUMBUS OREGON, SVENJA	01/01/89	31/12/89	57b 61a 64 65					XTb-706 ◊					NODC TOGA PACIFIC DATA BASE	

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114.01 R-08	COLUMBUS CANADA, COLUMBUS VICTORIA, COLUMBUS WELLINGTON, ICEBIRD, SVENJA	01/01/90	31/12/90	57a 61a					XTb-347 ◊					NODC TOGA PACIFIC DATA BASE	
124.....	JAPAN.....														
124.02 B-62	OSHORO MARU	07/11/90	06/09/91	12 50 52 54 55 56 57a 57b 58	251 †	T, S, sig-t, SVA, ΔD, O2, PO4, NO2, NO3, Si	20-3000	3000			Phyt-149 FObs-148	Wd, W, Ta, Tw, Bar	T Wa, Col, Tra	Publication 24.04-046	Cruises 36, 37, 38, 39
124.02 C-15	HOKUSEI MARU	06/01/91	24/10/91	52 57a 57b	125 †	T, S, sig-t, SVA, ΔD	100-1000	1000			FObs-70	Wd, W, Ta, Tw, Bar	S Wa, Col, Tra	Publication 24.04-046	Cruises 49, 50, 51
124.04 A-13	UMITAKA MARU	23/11/89	22/03/90	56 61a					XTb-71		Zoo-5 Eggs-5	Wd, Ta, Tw, Bar	T	Publication 24.12-053	Cruise 46
124.04 B-04	SHINYO MARU	11/02/90	21/02/90	43	7 †	T, S	500	500	XTb-46			Wd, Ta	T Wa	Publication 24.12-053	Cruise 16
124.04 D-01	SEIYO MARU	07/06/89	19/07/89	56 57a	22 †	T, S, sig-t, Vs, O2, PT	75-600	608	XTb-37			Wd, Ta	T	Publication 24.12-053	Cruises 6, 7
124.11 D-71	SEIFU MARU	03/02/91	24/10/91	52	234 †	T, S	50-1200	1200	XTb-70	Surf-13 Subs-316				Publication 24.25-014 thru 24.25-017	Cruises 91-02, 05, 07, 09
124.13 FFF-03	KATASHIMA MARU	01/07/71	05/11/71	52	70	(T, S, sig-t, SVA, ΔD, Vs) ◊	50-300	300				Cld, Wd ◊		NODC 498815, 498816, 498819 498820	
124.17 B-01	KAKUYO MARU	09/06/88	18/12/88	56 57a 61a 63 64 65 66	16 †	T, S, O2	800-1000	1000	XTb-19			Wd, W, Ta, Bar	T	Publication 24.29-001	Cruises 65, 66, 67
124.17 B-02	KAKUYO MARU	04/07/89	19/12/89	56 57a 61a 63 64 65 66	40 †	T, S, O2	400-1000	1000	XTb-10			Wd, W, Ta, Bar	T	Publication 24.29-001	Cruises 71, 72, 73

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124.17 B-03	KAKUYO MARU	24/05/90	23/11/90	56 57a 61a 63 64 65 66	33 †	T, S, O2	900-1000	1000				Wd, W, Ta, Bar	T	Publication 24.29-001	Cruises 76, 77, 78, 79
124.17 B-04	KAKUYO MARU	04/07/91	19/12/91	56 57a 61a 64 65	51 †	T, S, O2	900-1000	1000	XTb-34			Wd, W, Ta, Tw, Bar	T	Publication 24.29-001	Cruises 83, 84,85
124.24 B-52	HAKUHO MARU	04/11/89	02/03/90	23b 28A 28B 37 39 43 45a 49 56 57b	18 †	T, S, sig-t, ΔD, O2, PO4, NO2, NO3, SiO2	750-4650	5240			Zoo-7 Pigm-36	Wd, W, Ta, Bar	Wa	Publication 24.13-074	Cruise KH-89-2, IGBP Legs 1-7
124.24 B-53	HAKUHO MARU	25/01/88	10/03/88	56 57a 61a 64 65	29 †	T, S, sig-t, SVA, ΔD, PT, O2, PO4, NO2, NO3, NH4, pH	500-5000	5000			Pigm-22 Poll-12	Wd, W, Ta, Bar	Wa	Publication 24.13-075	Cruise KH-88-1 19 CTD stations
124.31 A-01	Shore-Based Party	22/01/82	28/01/83	45c SO							Zoo-180 * (611)			Publication 24.22-034 *	Cruise JARE-23, BIOMASS (Change 49)
124.31 B-07	SHIRASE	14/11/89	18/03/90	45b 45d 48b 48m 48n 56 61a 63 SO	24 †	T, S, sig-t, ΔD, O2, PO4, NO2, NO3, NH4, SiO3, pH	20-3500	3736	XTb-121			Wd, W, Ta, Tw, Bar, Vis, Hum	T, S, pH, O2, PO4, NO2, NO3, NH4, SiO3 Wa	Publication 24.22-035	8 CTD stations
126.....	NETHERLANDS.....														
126.02 B-05	NEDLLOYD BAHREIN, NEDLLOYD BALTIMORE, NEDLLOYD BANGKOK, NEDLLOYD BARCELONA	01/01/89	31/12/89	57b 61a 61b 64					XTb-482 ◊					NODC TOGA PACIFIC DATA BASE	
126.02 B-06	NEDLLOYD BAHREIN, NEDLLOYD BALTIMORE, NEDLLOYD BANGKOK, NEDLLOYD BARCELONA, NEDLLOYD MADRAS, NEDLLOYD MANILLA	01/01/90	31/12/90	57b 61a 61b 64					XTb-1,092 ◊					NODC TOGA PACIFIC DATA BASE	

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127.....		NEW ZEALAND.....														
127.01	G-03	TANGAROA	18/04/74	28/04/74	63	48	(T, S, sig-t, SVA, ΔD, Vs) ◊	20-1900	1900						NODC 610953	
127.01	G-04	TANGAROA	09/06/79	01/10/79	61a 63	51	(T, S, sig-t, SVA, ΔD, Vs) ◊	21-1420	1432						NODC 610957, 610958	
127.01	G-05	TANGAROA	06/03/80	18/12/80	61a 63 SO	68	(T, S, sig-t, SVA, ΔD, Vs) ◊	30-3200	3816						NODC 610959 thru 610961	
127.01	G-06	TANGAROA	18/02/81	21/02/81	61a	15	(T, S, sig-t, SVA, ΔD, Vs) ◊	150-790	794						NODC 610962	
127.01	G-07	TANGAROA	07/01/82	13/05/82	63	82	(T, S, sig-t, SVA, ΔD, Vs, O2, PO4, NO2, NO3, SiO4) ◊	20-1050	1136						NODC 610963 thru 610965	
127.02	A-04	WAIKATO, WELLINGTON	20/01/89	29/11/89	49 56 57a 61a 65					XTb-247 ◊					NODC TOGA PACIFIC DATA BASE	
127.02	A-05	WAIKATO, WELLINGTON	07/02/90	10/10/90	56 57a 61a 64 65					XTb-201 ◊					NODC TOGA PACIFIC DATA BASE	
128.....		NORWAY														
128.01	K-04	SEAL ISLAND	10/02/89	26/07/89	57b 61b					XTb-108 ◊					NODC TOGA PACIFIC DATA BASE	
135.....		SWEDEN.....														
135.01	E-32	THETIS	20/08/84	23/08/84	2	7	(T, S, sig-t, SVA, ΔD, Vs, O2, PO4) ◊	26-96	175				(Wd, Ta, Cld) ◊	Wa ◊	NODC 771155	
137.....		RUSSIAN FEDERATION...														
137.06	E-20	PRILIV														Number deleted from catalogue - duplicate data (Change 41)
137.06	M-17	PRIBOY														Number deleted from catalogue - duplicate data (Change 41)

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137.19 B-02	AKADEMIK PETROVSKII														Number deleted from catalogue - duplicate data (Change 41)
138.....	UNITED KINGDOM.....														
138.02 K-09	ACT 3, FARNELLA, FORTHBANK, IVYBANK, MELBOURNE STAR, NIMOS, QUEENSLAND STAR	01/01/89	31/12/89	56 57a 57b 61a 61b 64 65 66					XTb-561 ◊					NODC TOGA PACIFIC DATA BASE	
138.02 K-10	FARNELLA, FORTHBANK, IVYBANK, MELBOURNE STAR, NIMOS, QUEENSLAND STAR, T. A. VOYAGER	01/01/90	31/12/90	56 57a 57b 61a 61b 64 65 66					XTb-879 ◊					NODC TOGA PACIFIC DATA BASE	
138.05 B-29	DISCOVERY	09/03/90	08/04/90	23a	59 †	T, S, sig-t, Sva, ΔD, Vs, O2, PT	160-5390	5422			Pigm-59			Publication 38.14-380	Cruise 189
139.....	UNITED STATES.....														
139.01 C-46	ATLANTIS II	17/09/80	15/10/80	45c 45d SO	82 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	1000-5000	5284						NODC 319708	Cruise ISOS
139.01 L-17	OCEANUS	29/09/81	01/10/81	23b	34 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	25-880	937						NODC 329513	
139.03 V-03	DE STEIGUER	23/06/84	10/07/84	57b	56 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	40-3000	3000						NODC 319635	
139.04 B-41	T. G. THOMPSON	30/03/85	03/06/85	56 57a 57b	216	(T, S, sig-t, SVA, ΔD, Vs, O2, PO4, NO2, NO3, SiO4) ◊	100-6100	6280				(Wd, Ta, Tw, Bar) ◊		NODC 313525	Cruise TT270
139.05 C-09	ENDEAVOR	22/03/88	31/03/88	23b	26 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	2560-5300	5304						NODC 329642	Cruise 175
139.05 C-10	ENDEAVOR	18/05/89	11/06/89	23b	199 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	25-198	198						NODC 329637	SCOPEX Project

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139.07	H-10	GYRE	15/06/91	18/06/91	26	11	(T, S, sig-t, SVA, ΔD, Vs, O2, PO4, NO2, NO3, SiO4) ◊	10-960	960						NODC 323108	Cruise G04
139.08	M-04	ELLEN B. SCRIPPS	11/11/76	11/11/76	57b	8 * (12)	Vs ◊ *	300-360	361						NODC 313480 *	Cruise CalCOFI 7611 4 STD stations (Change 42)
139.08	N-20	THOMAS WASHINGTON	05/06/73	06/09/73	56 57a 57b	329 †	T, S, sig-t, SVA, ΔD, O2, PO4, NO2, NO3, SiO3	100-1500	4957						Publication 39.01-327	TASADAY Expedition, Legs I, II, III, IV 229 STD stations
139.08	Q-18	MELVILLE	14/03/89	12/04/89	23a 32b	86 †	(T, S, sig-t, SVA, ΔD, O2, PO4, NO2, NO3, SiO3) ◊	100-5800	5980				(Wd, Ta, Bar) ◊		NODC 313521 Publication 39.01-330	Cruise HYDROS, Leg 4
139.08	Q-19	MELVILLE	19/05/79	23/05/79	57b	23	(T, S, sig-t, SVA, ΔD, Vs) ◊	65-4115	4157						NODC 313405	Cruise 176
139.08	S-07	ALPHA HELIX	09/02/91	25/02/91	57b 58	106 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	100-600, 1000,1500	1500						NODC 310002	Cruise HX146
139.08	S-08	ALPHA HELIX	04/04/88	18/04/88	57b 58	93 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	40-1500	1500						NODC 319795	
139.08	V-16	NEW HORIZON	25/07/90	20/11/90	57b	160	T, S, sig-t, SVA, ΔD, O2, PO4, NO2, NO3, SiO3	20-537	575			Zoo-131 Pigm-160 PrPr-29	Wd, W, Ta, Tw, Cld, Bar	Wa, Col, Tra	Publication 39.01-325	Cruises CalCOFI 9007 & 9011
139.08	V-17	NEW HORIZON	28/09/91	12/10/91	57b	75	T, S, sig-t, SVA, ΔD, O2, PO4, NO2, NO3, SiO3, PT	26-570	883			Zoo-63 Pigm-75 PrPr-12	Wd, W, Ta, Tw, Cld, Bar	Wa, Col, Tra	Publication 39.01-329	Cruise CalCOFI 9110
139.14	F-17	COLUMBUS ISELIN	04/08/89	13/08/89	23b 32b	86 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	7-138	645						NODC 329638	AMASSEDS Expedition (Amazon Shelf Sediment Study)
139.15	E-17	WECOMA	06/05/89	08/05/89	57b	261 * (281) †									NODC 329641 *	Northern California Coastal Circulation Study (Change 47)
139.15	E-18	WECOMA	13/11/88	24/11/88	57b	183 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	44-595	595						NODC 329639	SMILE Expedition (California Shelf Mixed Layer Experiment)

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WDC-A, OCEANOGRAPHY DATA INFORMATION

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139.15 E-19	WECOMA	25/02/89	10/03/89	57b	417 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	50-990	991						NODC 329640	SMILE Expedition (Northern California Shelf Mixed Layer Experiment)
139.15 E-20	WECOMA	08/10/89	27/10/89	57b	17 †	(T, S) ◊	45-425	425						NODC 329840	
139.16 B-12	NORTHWIND	30/07/71	20/08/71	12	131 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	15-80	90					(T, S, sig-t, SVA, ΔD, Vs)-11 ◊	NODC 319964	
139.16 M-15	GLACIER	30/07/75	12/08/75	12 55	194 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	20-50	50					(T, S, sig-t, SVA, ΔD, Vs)-1 ◊	NODC 319967	
139.16 AA-01	BURTON ISLAND	28/07/72	19/08/72	12 17	113 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	15-60	60						NODC 319965	
139.16 AA-02	BURTON ISLAND	15/07/74	26/07/74	12 55	105 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	15-50	50						NODC 319966	
139.16 AA-03	BURTON ISLAND	26/07/77	05/08/77	12	151 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	20-140	140						NODC 319968	
139.23 J-10	SURVEYOR	03/06/85	27/06/85	57b	23 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	1500-3500	3732						NODC 310003	Cruise VENTS 1
139.23 K-24	DISCOVERER	17/10/90	06/12/90	57b 61a 61b	63 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	100-1000, 3500, 4100	4701						NODC 310051, 310052	Cruise EP2-90, EP3-90 (EPOCS)
139.23 K-25	DISCOVERER	06/08/86	28/08/86	57b	36 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	1183-3500	3537						NODC 310004	Cruise VENTS 1
139.23 K-26	DISCOVERER	14/07/87	11/08/87	57B	82 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	1874-3740	3740						NODC 310005	Cruise VENTS 1
139.23 K-27	DISCOVERER	13/07/88	21/09/88	57b	105 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	1870-2751	3141						NODC 310006, 310007	Cruises VENTS 1, VENTS 3
139.23 K-28	DISCOVERER	05/04/77	22/04/77	58	105 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	20-200	225						NODC 319106	
139.23 K-29	DISCOVERER	16/02/91	08/12/91	57b 61b	163 †	(T, S) ◊	200-3927	5497						NODC 310078, 310081 thru 310083	Period: 16/2-2/4, 15-24/7, 21/10-8/12/91
139.23 L-22	OCEANOGRAPHER	29/07/86	06/09/86	12	43 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	26-60	60						NODC 319732	

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139.23 L-23	OCEANOGRAPHER	28/07/74	15/08/74	23a	129 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	50, 500, 1400	1485						NODC 319380	Cruise GATE/GARP
139.23 O-09	Ships of Opportunity	01/01/89	31/12/89	48 49 50 56 57a 57b 61a 61b 64					XTb-2,202 ◊					NODC TOGA PACIFIC DATA BASE	
139.23 O-10	Ships of Opportunity	01/01/90	31/12/90	47 48 49 50 56 57a 57b 61a 61b 64					XTb-2,730 ◊					NODC TOGA PACIFIC DATA BASE	
139.23 X-19	MILLER FREEMAN	08/06/77	10/06/77	58	38 †	(T, S) ◊	25-650	702						NODC 319107	
139.23 Y-26	DAVID STARR JORDAN	05/08/86	30/11/86	57b	145 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	940-990	991						NODC 319970 thru 319972	
139.23 Y-27	DAVID STARR JORDAN	14/10/87	04/12/87	57b	73 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	986-991	991						NODC 319973	
139.23 Y-28	DAVID STARR JORDAN	31/07/88	30/11/88	57b 61b	163 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	470-991	991						NODC 319974, 319975	
139.23 Y-29	DAVID STARR JORDAN	08/01/91	11/03/91	57b	142	T, S, sig-t, SVA, ΔD, O2, PO4, NO2, NO3, SiO3	30-570	576			Zoo-115 Pigm-142 PrPr-26	Wd, W, Ta, Tw, Cld, Bar	Wa, Col, Tra	Publication 39.01-326	Cruises CalCOFI 9101, 9103
139.23 Y-30	DAVID STARR JORDAN	24/07/91	08/08/91	57b	97 †	T, S, sig-t, SVA, ΔD, O2, PO4, NO2, NO3, SiO3, PT	30-580	898			Zoo-66 Pigm-97 PrPr-14	Wd, W, Ta, Tw, Cld, Bar	Wa, Col, Tra	Publication 39.01-329	Cruise CalCOFI 9108 17 CTD stations
139.23 Y-31	DAVID STARR JORDAN	28/01/92	28/04/92	57b	158	T, S, sig-t, SVA, ΔD, O2, PO4, NO2, NO3, SiO3, PT	31-570	574			Zoo-127 Pigm-158 PrPr-28	Wd, W, Ta, Tw, Cld, Bar	Wa, Col, Tra	Publication 39.01-331	Cruises CalCOFI 9202, 9204

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139.23 CC-01	MALCOLM BALDRIDGE	23/02/90	16/05/90	57b 61a 61b SO	140 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	100-5600	5690						NODC 310049, 310050	Cruises C61-90, C-62-90, EP1-90/MB
139.23 CC-02	MALCOLM BALDRIDGE	01/04/91	12/04/91	57b 61b	21 †	(T, S) ◊	495-991	3931						NODC 310079	
139.26 C-05	MOANA WAVE	21/06/88	28/07/88	48b 56 57a	117 † * (234)									NODC 329634 *	Cruise WEPOCS III 117 CTD stations (Change 47)
139.26 C-06	MOANA WAVE	09/02/89	10/05/89	57b	213 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	1680-5680	5880						NODC 329645, 329646	
139.26 C-07	MOANA WAVE	14/01/86	12/02/86	57a 61a	116 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	450-5290	5662						NODC 329633	Cruise WEPOCS II
143.....	KOREA.....														
143.02 T-06	BUSAN 852	11/02/89	11/12/89	50 51 52	263	T, S, sig-t, SVA, TherAnom, ΔD, O2, PO4, NO2, NO3	30-500	500				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-081	Standard Sections Observations
143.02 T-07	BUSAN 852	05/04/90	14/12/90	50 51 52	243	T, S, sig-t, SVA, TherAnom, ΔD, O2, PO4, NO2, NO3	30-500	500				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-084	Standard Sections Observations
143.02 U-06	GYUNGBUK 853	13/02/84	19/10/84	52	165	T, S, sig-t, SVA, TherAnom, ΔD, O2	50-500	500				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-081	Standard Sections Observations
143.02 U-07	GYUNGBUK 853	10/04/90	16/10/90	52	132	T, S, sig-t, SVA, TherAnom, ΔD, O2	50-490	490				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-084	Standard Sections Observations
143.02 X-04	GANGWON 867	06/04/89	09/01/90	51 52	172	T, S, sig-t, SVA, TherAnom, ΔD, O2	50-500	534				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-081	Standard Sections Observations
143.02 X-05	GANGWON 867	07/02/90	15/10/90	52	145	T, S, sig-t, SVA, TherAnom, ΔD, O2	45-500	500				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-084	Standard Sections Observations
143.02 Y-04	INCHEON 866	06/04/89	15/10/89	51	92	T, S, sig-t, SVA, TherAnom, ΔD, O2	18-75	86				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-081	Standard Sections Observations

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143.02 Y-05	INCHEON 866	06/02/90	12/10/90	51	140	T, S, sig-t, SVA, TherAnom, ΔD, O2	30-75	75				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02 084	Standard Sections Observations
143.02 Z-01	BUSAN 851	11/02/89	22/12/89	52	67	T, S, sig-t, SVA, TherAnom, ΔD, O2	45-500	500				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-081	Standard Sections Observations
143.02 Z-02	BUSAN 851	05/02/90	10/12/90	50 51 52	146	T, S, sig-t, SVA, TherAnom, ΔD, O2, PO4, NO2, NO3	30-500	500				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-084	Standard Sections Observations
143.02 AA-01	JEONBUK 868	14/02/89	14/10/89	51	124	T, S, sig-t, SVA, TherAnom, ΔD, O2	18-100	100				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-081	Standard Sections Observations
143.02 AA-02	JEONBUK 868	07/02/90	12/10/90	51	120	T, S, sig-t, SVA, TherAnom, ΔD, O2	25-100	100				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-084	Standard Sections Observations
148.....	MALAGASY REPUBLIC....														
148.01 A-23	VAUBAN	30/10/78	03/11/78	64	4	(T, S, sig-t, SVA, ΔD, Vs, O2) ◊	246-582	582						NODC 550037	
148.01 A-24	VAUBAN	25/01/79	31/01/79	64	19	(T, S, sig-t, SVA, ΔD, Vs, O2) ◊	200-540	540						NODC 550041	
148.01 A-25	VAUBAN	01/04/80	03/04/80	64	13	(T, S, sig-t, SVA, ΔD, Vs, O2) ◊	30-490	494						NODC 550052	
153.....	VENEZUELA.....														
153.01 A-08	GUAIQUERI	25/10/66	27/10/66	27	14	(T, S, sig-t, SVA, ΔD, Vs, O2) ◊	20-50	50						NODC 930048	
153.01 B-17	LA SALLE	15/03/66	28/05/66	27	44	(T, S, sig-t, SVA, ΔD, Vs, O2, PO4, Ptotal, NO2, NO3, SiO4, pH) ◊	10-1200	2000					T-19 ◊ ††	NODC 930056, 930058, 930059	
153.01 B-18	LA SALLE	19/07/68	23/07/68	27	24	(T, S, sig-t, SVA, ΔD, Vs, O2) ◊	10-1200	1203						NODC 930068	

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153.01 B-19	LA SALLE	10/10/73	15/10/73	27	24	(T, S, sig-t, SVA, ΔD, Vs, O2) ◊	5-500	593						NODC 930063	
153.01 B-20	LA SALLE	07/08/74	27/08/74	27	136	(T, S, sig-t, SVA, ΔD, Vs, O2) ◊	20-1800	1815						NODC 930064	
153.01 B-21	LA SALLE	21/11/78	25/11/78	23b 27	27	(T, S, sig-t, SVA, ΔD, Vs, O2, PO4, NO2, NO3, SiO4, pH) ◊	10-100	100						NODC 930061	
153.01 B-22	LA SALLE	14/09/84	23/09/84	27	5	(T, S, sig-t, SVA, ΔD, Vs) ◊	15-25	100					(T, S, sig-t, SVA, ΔD, Vs)-115 ◊	NODC 930036	
153.03 A-06	BICMAR I	24/11/65	29/11/65	27	4	(T, S, sig-t, SVA, ΔD, Vs) ◊	20-40	800						NODC 930077	
153.04 A-03	GOLFO DE CARIACO	22/08/69	26/08/69	27	28	(T, S, sig-t, SVA, ΔD, Vs) ◊	10-30	30					(T, S, sig-t, SVA, ΔD, Vs)-2 ◊	NODC 930121	
173.....	PEOPLE'S REPUBLIC OF CHINA.....														
173.02 D-05	XIANGYONGHONG 14	01/04/89	30/11/89	56 57a 61a					XTb-113 ◊					NODC TOGA PACIFIC DATA BASE	
173.02 D-06	XIANGYANGHONG 14	02/01/90	14/07/90	56 57a 61a					XTb-157 ◊					NODC TOGA PACIFIC DATA BASE	
214.....	GERMANY.....														
214.01	DEUTSCHE BUCHT (LV), ELBE 1 (LV), FEHMARNBELT (LV), Kiel (LH), Nordsee (Platform), TW/EMS (LV)	01/01/57	31/12/90	1 4	1,510 * ††	T, S	13-30	30				Wd, Ta		Publication 14.02-220 *	* Period: Add 1990 †† * Total Stats: 11,782 †† (Change 48)
224.....	JAPAN.....														
224.01 A-14	Ocean Data Buoys	01/01/91	31/12/91	50 52 56 57a								Wd, Ta, Tw, Bar, Sol Rad	T †† Wa	Publication 24.07-085	

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239.....	UNITED STATES.....														
239.02	Neah Bay, etc. (West Coast Shore Stations)	01/01/61	12/01/91	57b									T, S, sig-t	Publication 39.01-328 *	* Period: Add 1991 (Change 48)
239.13 D-02	WEATHERBIRD	20/10/88	19/12/88	23b	11	(T, S, sig-t, SVA, ΔD, Vs) ◊	250-4200	4210						NODC 323112	Hydro Station "S"
239.13 D-03	WEATHERBIRD	26/01/89	19/12/89	23b	54 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	190-4200	4203						NODC 323113	Hydro Station "S"
239.13 D-04	WEATHERBIRD	15/01/90	11/09/90	23b	38 †	(T, S, sig-t, SVA, ΔD, Vs) ◊	250-4200	4201						NODC 323114	Hydro Station "S"
243.....	KOREA.....														
243.01 A-35	Ship not identified	02/02/89	10/01/90	50 51 52							Zoo-444			Pulication 43.02-081	Standard Section Observations
243.01 A-36	Ship not identified	03/02/90	12/10/90	50 51 52							Zoo-125			Publication 43.02-084	Standard Section Observations
243.01 C-19	BUSAN 852	13/02/89	11/10/89	50 51 52	60	T, S, sig-t, SVA, TherAnom, ΔD, O2, PO4, NO2, NO3	30-125	125				Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-081	Korea-Japan Cooperative Standard Section Observations
243.01 C-20	BUSAN 851, BUSAN 852	08/02/90	07/12/90	50 51 52	72	T, S, sig-t, SVA, TherAnom, ΔD, O2, PO4, NO2, NO3	45-125	125			Zoo-30	Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-084	Korea-Japan Cooperative Standard Section Observations
243.01 E-01	BUSAN 851, GANGWON 867	14/02/89	06/09/89	52	32	T, S, sig-t, SVA, ΔD, O2, PO4, NO2, NO3	100-500	548			Zoo-16	Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-081	Polar Front Oceanographic Stations Standard Section Observations Period: 14-15/2, 1-6/9/89
243.01 E-02	BUSAN 851, BUSAN 852	03/02/90	09/08/90	51	36	T, S, sig-t, SVA, TherAnom, ΔD, O2, PO4, NO2, NO3	50-100	100			Zoo-31	Wd, W, Ta, Cld, Bar	Wa, Col, Tra	Publication 43.02-084	Line 600 Standard Section Observations Period: 3-4/2, 7-9/8/90

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PART III
REMARKS

REMARKS

113.03 D-42	NODC NO.	PERIOD	CRUISE	NO. OF STAS.
	358350	3-10/2/79	PEMG SOP I	19
	358352	22-25/5/79	PEMG SOP II	9
	358353	19/6-12/7/79	HYDROTHON-3	99

113.03 D-44	NODC NO.	PERIOD	CRUISE	NO. OF STAS.
	358355	31/1-11/2/81	HYDROTHON 4	27
	358357	15-26/6/81	VALTRACOR I	11
	358358	25/7-4/8/81	VALTRACOR II	10
	358359	7-16/8/81	HYDROTHON 6	19
	358360	16-26/11/81	EVA IX	22

113.07 H-14	NODC NO.	PERIOD	CRUISE	NO. OF STAS.
	359175	16-20/2/87	SUZAN 2	28
	359176	7/5-3/6/87	BRESIL/MD55	33
	359177	14/7-6/8/87	T-SINODE 6	16
	359178	6-8/9/87	--	2
	359179	27-30/10/87	TOGA SINODE 27	11

153.01 B-17 SEA SURFACE: T, S, sig-t, SVA, ΔD, Vs, O2, PO4, Ptotal, NO2, NO3, SiO4, pH - 19 observations (surface T; other parameters single readings at various depths)

214.01 NO. OF STAS.: New Total - 11,782
CURRENTS: New Total: - 327,301

NOTE: WDC-A, Oceanography maintains detailed information concerning numbers of stations and numbers of current observations, archived by year, for each Light Vessel. This information is available upon request.

224.01 A-14 SEA SURFACE: T (Single observations at 1, 50, and 100 m)

AVAILABILITY OF TRACK CHARTS

Track charts are available from WDC-A, Oceanography for cruises represented by the following Catalogue Numbers:

WDC-A Catalogue Number	Page No.
113.07 H-07	26
113.07 H-08	26
113.07 H-12	26
124.17 B-01	28
124.17 B-02	28
124,17 B-03	29
124.17 B-04	29
124.24 B-52	29
124.24 B-53	29
124.31 B-07	29
138.05 B-29	31
139.08 Q-18	32
139.08 V-16	32
139.08 V-17	32
139.23 Y-29	34
139.23 Y-30	34
139.23 Y-31	34

PART IV

DATA HOLDINGS OF RNODC's AND SPECIALIZED DATA CENTERS

DATA HOLDINGS OF RNODC's AND SPECIALIZED DATA CENTERS

This section of the Change Notice provides information on the availability of specialized data sets prepared by the various Responsible National Oceanographic Data Centers (RNODC's) and other Specialized Data Centers. Only those data sets that have actually been received by WDC-A, Oceanography are described in this section. WDC-A can provide magnetic tape copies of these data sets in the originator's format.

These data products are not described in the usual manner in the Catalogue portion of the Change Notice (except for certain separately-identified cruises that are also included in data sets such as FOY), as the data are not usually merged with the standard WDC-A, Oceanography data bases. Thus they constitute a suite of data products, prepared by RNODC's and other Specialized Data Centers, that are separate and distinct from the standard data types regularly catalogued in the Change Notices and normally available from WDC-A.

Such data products are not necessarily intended to be routinely exchanged by the WDC's under normal international data exchange guidelines. They may be voluminous or costly to prepare and, thus, may be precluded from regular data exchanges between WDC's and their exchange cooperators. Data sets in automated form are available from the WDC's usually at a cost not to exceed the cost of reproduction and postage.

MEDALPEX

IGOSS

THE GLOBAL WEATHER EXPERIMENT • 1978–1979 •

SOC

TROPICAL OCEANS GLOBAL ATMOSPHERE

RNODC FOY

FGGE OPERATIONAL YEAR GLOBAL OCEAN CLIMATE DATA BASE

The Global Ocean Climate Data Base is available from the National Oceanographic Data Center (NODC) which served as the Responsible National Oceanographic Data Center for the FGGE* Operational Year (RNODC/FOY). The Global Ocean Climate Data Base is a collection of Oceangraphic data submitted to NODC by 17 different countries. Although the formal FGGE Operational Year was from 1 December 1978 to 30 November 1979, the data set covers the extended FOY period from 1 September 1978 to 29 February 1980.

The data base includes four types of data: (1) oceanographic hydrocast (bottle) data, (2) conductivity/ salinity-temperature-depth (C/STD) data, (3) expendable bathythermograph (XBT) data, and (4) Eulerian currrent (current meter) data. The data are recorded on magnetic tape in two different formats: (1) the Intergovernmental Oceanographic Commission General Exchange Format 3 (GF3) and (2) NODC archive formats (different format for each of the four types of data). In GF3 the data base comprises eight magnetic tapes; in the NODC formats the data base comprises four tapes.

The FGGE Operational Year was the culmination of a series of international ocean/atmosphere research programs conducted in the 1970's. This effort, in turn, was a steppingstone toward the increasingly ambitious and large-scale research and monitoring pro-grams of the 1980's and 1990's that are directed toward fuller understanding of tropical dynamics and their influence on global ocean/atmosphere phenomena.

**FGGE = First GARP Global Experiment, also known as the Global Weather Experiment.*
GARP = Global Atmosphere Research Program.

The FGGE/FOY Data Base

The FGGE/FOY Global Ocean Climate Data Base compiled by the RNODC contains: 10,413 Oceanographic hydrocast (bottle) stations; 4,030 CTD/STD casts; 28,733 expendable bathythermograph (XBT) temperature profiles; and 294 months of time-series data from current meter moorings. The sources of these data are summarized in Table 1.

Table 1. FGGE Operational Year Global Ocean Climate Data Base

Country	Data Type			
	Oceanographic Stations *(stations)*	CTD/STD *(stations)*	XBT *(stations)*	Current Meter *(meter-months)*
Australia	--	--	2,754	--
Canada	324	--	507	--
People's Republic of China	318	--	--	--
Republic of the Congo	307	--	--	--
France	--	--	307	--
German Democratic Republic	74	--	--	--
Federal Republic of Germany	--	--	1,366	--
Ghana	335	--	--	--
Italy	--	--	55	--
Japan	1,138	--	832	--
Philippines	--	--	8	--
Poland	87	--	267	--
Republic of South Africa	--	--	56	--
Spain	--	--	180	--
UK	--	64	944	--
USA	1,271	3,966	20,727	294
USSR	6,559	--	730	--
TOTAL	**10,413**	**4,030**	**28,733**	**294**

Table 2 lists the number of tapes included in the data set. Customers may order the entire set of tapes or only the tape(s) for one or more of the four different data types in either of the two format options.

Table 2. FOY Global Ocean Climate Data Tapes

Data Type	Data Quantity	Number of Tapes: GF3 Format *(1600 bpi)*	Number of Tapes: NODC Format *(6250 bpi)**
Oceanographic Station (hydrocast)	10,413 stations *(128 cruises)*	2	1
CTD/STD	4,030 stations *(62 cruises)*	1	1
XBT	28,733 stations *(571 cruises)*	3	1
Current Meter	294 months *(27 meters)*	2	1
	TOTAL	8	4

**Data tapes in NODC archive formats are also available by special request in 1600 bpi density*

Data Availability

Magnetic tape copies of the FOY Global Ocean Climate Data Base are available from the RNODC in either GF3 format or in NODC archive formats. Magnetic tape characteristics are: (1) GF3 format -- 9 track, 1600bpi, ANSI/ASCII, non-labeled, record length = 1920, unblocked; (2) NODC formats -- 9 track, 6250 bpi, ANSI/ASCII, non-labeled, variable record length, maximum blocksize = 4,160 (oceanographic station and CTD/STD data), 2,600 (XBT data), and any multiple of 60 (current meter data).

Complete sets of tapes or individual tapes are available at the cost of tape reproduction from:

World Data Center A, Oceanography
NOAA
Washington, DC 20235, USA

Telephone: 202-606-4571
FAX: 202-606-4586
Electronic mail *NODC.WDCA* on
TELEMAIL/Omnet

RNODC MEDALPEX (Sea Level)

MEDITERRANEAN ALPINE EXPERIMENT SEA LEVEL DATA SET

In 1975, the IOC decided to support the development of an oceanographic program in the Mediterranean during the GARP Alpine Experiment (ALPEX). The MEDALPEX project took place between 1 September 1981 and 30 September 1982, with a special period of observation from 15 February 1982 to 30 April 1982. It was a multi-national project involving scientists from 7 countries.

The main purpose of MEDALPEX was to increase understanding of the effect of wind forcing on the dynamics of the western part of the Mediterranean Basin. Specific studies were undertaken, each having a particular scientific objective including:

1. The interrelationship between the general circulation and mesoscale eddies

2. Offshore dynamic response mechanisms under severe weather conditions

3. Storm surges and the piling up of water, especially in the Adriatic and Ligurian seas

The measurement of sea level was considered to be an important component of the observation program to support these studies. A wide range of other types of oceanographic data were also collected, including classical and synoptic meteorological measurements, data collected using remote sensing techniques and data from current meters, thermistor chains, waverider buoys, CTDs and XBTs.

The Permanent Service for Mean Sea Level (PSMSL) was requested by IOC to fulfil the role of the Responsible National Oceanographic Data Center for the MEDALPEX sea level data. The work was under-taken on behalf of PSMSL by the Marine Information and Advisory Service (MIAS) - U.K.'s National Oceanographic Data Center, now known as the British Oceanographic Data Centre.

Sea level data were submitted to MIAS from 29 of the 40 MEDALPEX sites. An inventory of the data is given on the following page. Measurements from 28 of the sites were taken using conventional stilling wells and, with one exception, were supplied to MIAS as hourly values. Data from the remaining site, off the coast of Corsica, were collected by an Aanderaa water level recorder at half-hourly intervals.

INVENTORY OF DATA RECEIVED

BY MEDALPEX SEA LEVEL DATA CENTER

SITE	LATITUDE	LONGITUDE	START DATE	SERIES DURATION	CYCLE INTERVAL
	DDD MM.MH	DDD MM.MH	DD/MM/YY	WEEKS	SECS
CADIZ	36 32.0N	6 17.0W	01/09/81	56	3600
TARIFA	36 0.0N	5 36.0W	01/09/81	56	3600
GIBRALTAR	36 8.0N	5 21.0W	01/09/81	56	3600
CEUTA	35 54.0N	5 19.0W	01/09/81	56	3600
ALGECIRAS	36 7.0N	5 26.0W	01/09/81	56	3600
PUERTOS BANUS	36 37.0N	4 55.0W		NO DATA	
MALAGA	36 43.0N	4 25.0W	01/09/81	56	3600
ALMERIA	36 49.7N	2 29.2W	14/08/81	58	3600
CARTEGENA	37 36.0N	0 59.0W		NO DATA	
ALICANTE I	38 20.3N	0 30.4W	23/08/81	60	3600
ALICANTE III	38 20.3N	0 30.7W	28/08/81	60	3600
PALMA DE MALLORCA	39 33.0N	2 38.0E	01/09/81	56	3600
BLANES	41 41.0N	2 48.0E		NO TIDE GAUGE	
ROSAS	42 15.0N	3 11.0E		NO TIDE GAUGE	
PORT VENDRES	42 31.0N	3 6.0E	28/12/81	39	3600
SETE	43 25.0N	3 43.0E		NO DATA	
FOS	43 25.0N	4 46.0E		NO DATA	
TOULON	43 7.0N	5 55.0E	30/08/81	56	3600
NICE	43 42.0N	7 16.0E	03/07/81	68	3600
MONACO	43 44.0N	7 25.0E	29/06/81	69	3600
OFFSHORE	42 34.8N	8 44.0E	06/04/82	18	1800
NEAR CALVI	42 34.8N	8 44.0E	29/07/82	9	1800
AJACCIO	41 55.0N	8 43.0E	30/08/81	49	3600
CAGLIARI	39 13.0N	9 8.0E		NO DATA	
SAVONA	44 18.0N	8 28.0E		NO DATA	
GENOVA	44 24.0N	8 54.0E	31/08/81	58	3600
LA SPEZIA	44 7.0N	9 48.0E		NO DATA	
LIVORNO	43 33.2N	10 18.2E	31/08/81	49	3600
CIVITAVECCHIA	42 5.7N	11 47.4E	25/08/81	22	3600
NAPOLI	40 50.4N	14 16.2E	31/08/81	56	3600
PALERMO	38 8.0N	13 23.0E		NO DATA	
ANCONA	43 37.0N	13 31.0E	01/09/81	56	3600
PTO CORSINI	44 35.0N	12 20.0E		NO DATA	
VENEZIA	45 26.0N	12 20.0E	01/01/81	104	3600
KOPER	45 33.0N	13 44.0E	28/02/82	9	3600
ROVINJ	45 5.0N	13 38.0E	28/02/82	9	3600
BAKAR	45 18.0N	14 32.0E	28/02/82	9	3600
ZADAR	44 5.4N	15 16.3E	28/02/82	9	3600
NOVALJA	44 33.3N	14 13.2E	28/02/82	9	3600
SPLIT	43 30.0N	16 26.0E	28/02/82	9	3600
DUBROVNIK	42 40.0N	18 4.0E	28/02/82	9	3600
BAR	42 5.0N	19 5.0E	28/02/82	9	3600

In compiling the dataset, MIAS translated all incoming data into a common format with elevation values standardized to meters and times to GMT. The data for each site were plotted as a time series and checks were carried out for gaps or constant values, spikes, spurious data or punching errors. Further checks were carried out by tidally analyzing and low pass filtering the data. Non-tidal fluctuations were investigated using principal com- ponent analysis. Qualifying information applicable to the data from each site was checked for inconsistencies and completeness, and appropriate documentation was stored with the data in the form of plain language records. The complete quality controlled dataset, including documentation, is available as a single magne-tic tape formatted in GF3, the IOC's standard format for the exchange of oceanographic data. A copy of the magnetic tape may be obtained at a cost not to exceed the cost of reproduction and postage from:

World Data Center A, Oceanography
National Oceanic & Atmospheric Administration
Washington, D.C. 20235
U.S.A.

or

RNODC/MEDALPEX Sea Level Data
BODC
Bidston Observatory
Merseyside L43 7RA
U.K.

TOGA

TROPICAL OCEAN and GLOBAL ATMOSPHERE PROGRAMME
TROPICAL SUBSURFACE DATA SET

TOGA Tropical Subsurface Data Centre

The TOGA Tropical Subsurface Data Centre in Brest operates within the framework of both the IOC's International Oceanographic Data Exchange (IODE) system and the Joint IOC-WMO Integrated Global Ocean Services System (IGOSS). The Centre collects subsurface ocean observations for the tropical oceans (30°N-30°S) from the following sources:

1. tropical oceans observations from the IGOSS network;
2. additional vertical temperature profiles from XBT's and from drifting or moored buoys with thermistor chains, not sent over the GTS;
3. time series of temperature and conductivity (salinity) at fixed depth from moored thermistor chains;
4. surface temperature and conductivity (salinity) data and vertical profiles of temperature and conductivity as from CTD's, bottle casts, and WCTD's; and
5. other subsurface ocean temperature and conductivity (salinity) measurements from process-oriented intensive oceanographic observation projects in the tropical oceans.

Initially, data are collected from radio transmissions, with fully digitized and quality controlled observations added with time.

The subsurface thermal data described above are analyzed and the Centre produces quality-controlled Level II-B data sets for the tropical oceans for the ten-year period (1985-1994). The Centre is also responsible for provision of these data sets on magnetic tape in GF-3 format to other TOGA Data Centres and to the World Data Centers, Oceanography at appropriate intervals.

WDC-A, Oceanography Support to TOGA

WDC-A, Oceanography serves as an archival center for the TOGA Tropical Subsurface Data Sets. Its responsibilities are to provide TOGA data sets to requesters in the international scientific community, at a cost not to exceed that of data reproduction and postage, and to provide copies of all TOGA data sets received to World Data Center B, Oceanography in exchange.

WDC-A, Oceanography provides additional data management support to the TOGA program by its contributions to the enhancement of global tropical thermal data bases. WDC-A has utilized the IOC's lists of Declared National Programs (DNP's) to identify selected cruises for which data were observed in the tropical oceans and, subsequently, requested the data. Report of Observations/Samples Collected by Oceanographic Programs (ROSCOP) marine data inventory forms have been used in the same manner to identify available tropical oceans data. The compilation of the Time Series Data Inventories of the world's oceans by WDC-A, has also resulted in some cases in the identification of available tropical ocean observations. WDC-A expects to utilize these tools increasingly in the future to acquire selected data sets intended to further enhance the tropical oceans data bases.

Climate researchers and modelling experts have identified the digitization of historical oceanographic observations as one of the key elements required in data management support for TOGA and other Global Change programs, such as GOFS and WOCE. Such data sets are frequently extremely useful in filling spatial or temporal gaps in existing digital data holdings. WDC-A, Oceanography's data archives contain data for a substantial number of observations in manuscript form that have never been processed. A significant portion of these could provide support to TOGA. For example, some Japan Fisheries Agency standard sections in the Western Pacific are in the TOGA area. Many of these manuscript data sets would be amenable to data entry by an optical scanning device. The possibility of support for procurement of such a device is being explored by WDC-A.

TOGA Tropical Subsurface Data Products

WDC-A receives Level II-B data sets from the Subsurface Data Centre in Brest for both Atlantic and Indian Oceans data, as previously described. Magnetic tape copies of the Level II-B data sets for the Atlantic and Indian Oceans are then provided to WDC-B, Oceanography in exchange. Magnetic tape copies of these data sets are available at the cost of tape reproduction from:

World Data Center A,
Oceanography
National Oceanic and
Atmospheric Administration
Washington, D.C. 20235 U.S.A.

TOGA Subsurface Data Centre
Centre IFREMER de Brest
BP 70
29263 Plouzane
France

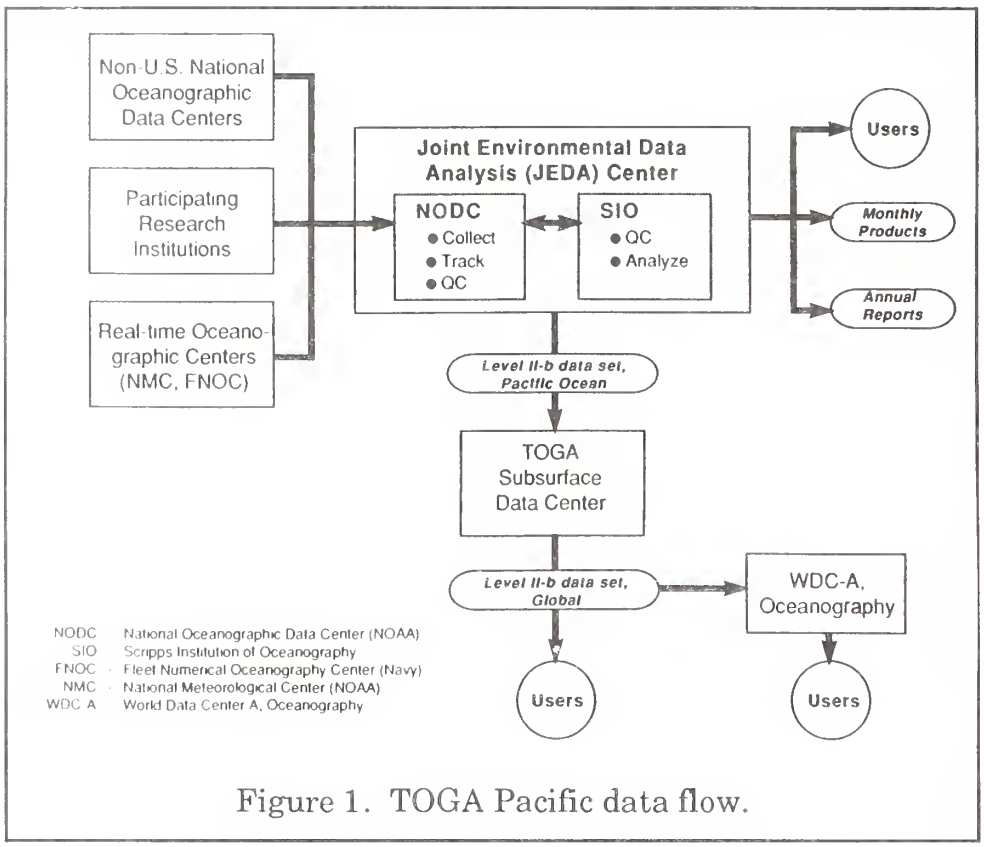


Figure 1. TOGA Pacific data flow.

WDC-A, by virtue of its collocation with the U.S. National Oceanographic Data Center (NODC), also has access to the Tropical Pacific Ocean data set prepared jointly by NODC and the Scripps Institution of Oceanography (SIO), serving as the Joint Environmental Data Analysis (JEDA) Center. JEDA tracks, acquires, quality controls, and merges all available subsurface thermal data for the Tropical Pacific. NODC assembles, reformats and initiates quality control of the data; SIO performs further quality control and analysis of the data. The TOGA Pacific data flow is depicted in Figure 1. Each yearly Level II-B Pacific Ocean data set undergoes the full spectrum of quality control and analysis by the JEDA Center. It is then converted to the GF-3 format and provided to WDC-A, which in turn provides a tape copy to WDC-B in exchange. The TOGA Pacific Data Sets are available on magnetic tape at the cost of tape reproduction from:

World Data Center-A, Oceanography
NOAA
Washington, D.C. 20235 U.S.A.

JEDA Center
National Oceanographic Data Center
NOAA
Washington, D.C. 20235 U.S.A.

JEDA Center
Scripps Institution of Oceanography
University of California
La Jolla, CA 92093 U.S.A.

RNODC SOC

SOUTHERN OCEANS DATA SET

The RNODC/Southern Oceans (RNODC/SOC) was created in order to provide a regional data management and data information service for Southern Oceans physical and chemical oceanographic data. The RNODC was created under guidelines set forth in Recommendation XII.1 by the IOC's Technical Committee on International Oceanographic Data Exchange (IODE XII, Moscow 10-17 December 1986).

The Terms of Reference of the RNODC/SOC include the following responsibilities:

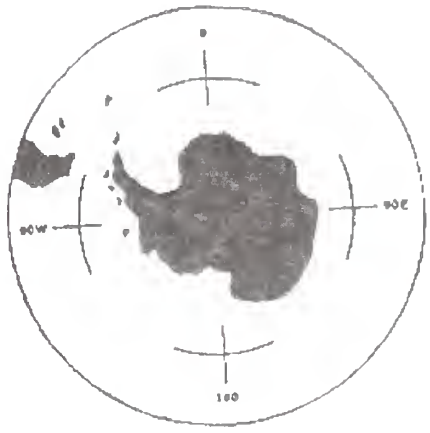
- Acquire, quality control, and store in standard format the physical and chemical data obtained by the international community from the cruises and research programmes carried out in the Southern Oceans;

- Co-operate closely with the World Data Centers, Oceanography by sending regular shipments (at least once a year), free of charge, of complete sets of physical and chemical data stored on magnetic tapes in GF3, and inventories, data summaries, and other data products related to the physical and chemi cal data from the Southern Oceans;

- Assist the World Data Centers by sending copies to them of any ROSCOP forms submitted to the RNODC-SOC;

- Co-operate with the BIOMASS Data Center, regarding exchange of data and inventories, as well as other data products.

The RNODC-SOC is located in and operated by the Argentine Oceanographic Data Center (CEADO).



RNODC/SOC Oceanographic Data Set

The RNODC/SOC data set contains data for all available oceanographic stations for the Southern Oceans between 50° and the Antarctic Continent. Data for a total of 11,093 oceanographic stations taken during 294 Southern Oceans cruises are included in the data set. Seasonally, the data totals are nearly 2,000 observations taken during the Austral Winter (April-September) and more than 9,000 observations taken during the Austral Summer (October-March). Southern Oceans observational data taken by 16 countries have been received by the RNODC.

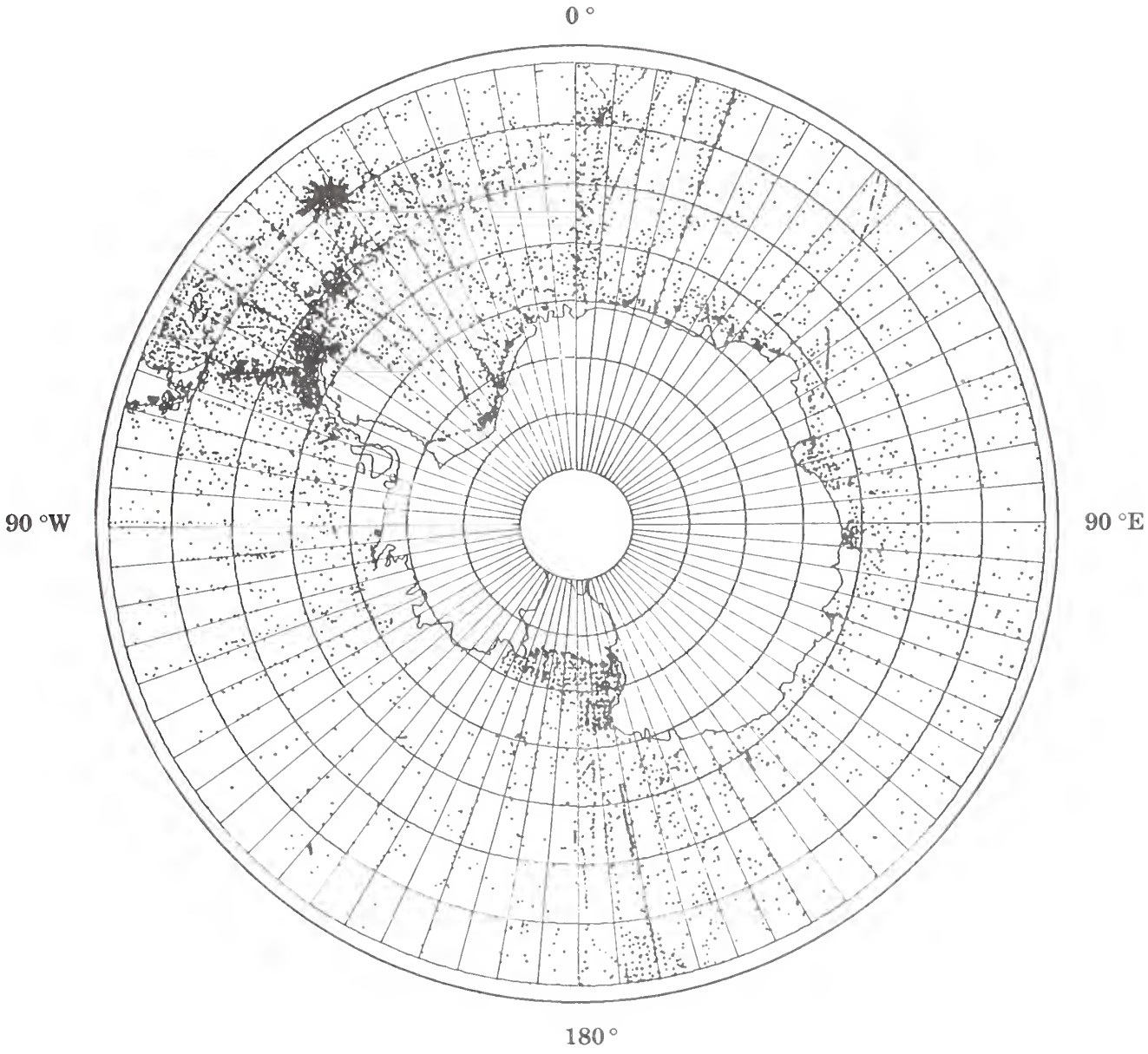
The RNODC/SOC data set is available from:

RNODC/SOC
Centro Argentino de Datos Oceanograficos
Avda. Montes de Oca 2124
1271 - Buenos Aires
Republica Argentina

or

World Data Center A, Oceanography
National Oceanic & Atmospheric Administration
Washington, D.C. 20235 U.S.A.

SOUTHERN OCEANS
OCEANOGRAPHIC STATION PLOT



This plot shows the locations of 11,093 oceanographic data observations made in the Southern Oceans and registered in the RNODC/SOC master data file.

RNODC IGOSS

INTEGRATED GLOBAL OCEAN SERVICES SYSTEM DATA SET

IGOSS Background

The Integrated Global Ocean Services System (IGOSS) is a worldwide system for the rapid collection, exchange, and analysis of oceanographic data and the timely preparation and dissemination of ocean products and services. IGOSS was established to support oceanographic and meteorological research efforts by providing: (1) a global distribution of oceanographic observations, (2) a mechanism for the timely and effective exchange of data, and (3) the preparation of oceanographic analysis products capable of supporting global change and climate research studies. IGOSS products and services can be useful for input to large scale circulation models, for research survey planning, and for direct application in commercial fisheries, recreation, commercial shipping, and search and rescue efforts. Real-time ocean products currently available include sea surface and subsurface temperature analyses, as well as graphical depictions of mixed layer depths and ocean frontal positions. Additional analyses and data summaries available as delayed-mode products include: (1) ocean currents, (2) salinity, (3) distribution of pollutants, and (4) weekly and monthly temperature means. The IGOSS data are BATHY (profiles of temperature with depth) and TESAC (temperature/salinity/current profiles with depth).

The major operational elements of the IGOSS program are: (1) observing system, (2) data processing and services system, (3) telecommunication arrangements, (4) marine pollution monitoring, and (5) data archival and exchange. The organizational structure of the IGOSS data processing and services system consists of World Oceanographic Centers in Moscow and Washington and National and Specialized Oceanographic Centers in participating nations. Data from all cooperating nations are combined in standard formats at the World Oceanographic Centers, and then used as input to global and hemispheric analyses for improved weather forecasting, global climate studies, and a variety of products for oceanographic research uses. National Oceanographic Centers provide quality control for data from their country entering the international exchange system via a high speed global telecommunications link called the Global Telecommunication System (GTS) of the World Weather Watch.

Long-range data exchange and service arrangements and long-term archival functions for IGOSS data are performed by National Oceanographic Data Centers in Japan, the U.S.S.R., and the United States. These NODC's, serving as Responsible National Oceanographic Data Centers (RNODC's) for IGOSS, compile archives of IGOSS data and products, assume responsibilities for specified regions of the world oceans, and deal with problems of quality control. They maintain geographically sorted, updated magnetic tape files of observations received via the GTS.

RNODC's/IGOSS Terms of Reference

The terms of reference for RNODC's/IGOSS are as follows:

1. Acquire BATHY and TESAC datasets and sub-surface temperature data from drifting and moored buoys from IGOSS Specialized Oceanographic Centres (SOC) for area of responsibility; apply supplementary quality control to acquired data and provide services to users after 30 days from receipt of that data;

2. Acquire non-operational BATHY, TESAC, and sub-surface temperature data from drifting and moored buoys and/or datasets for area of responsibility; apply quality control to non-operational data, prepare integrated datasets, and provide services to users;

3. Maintain a data base and inventories for areas of responsibility;

4. Prepare products based on operational and non-operational IGOSS data, as appropriate; also, archive and make available to users, selected data products provided by SOCs and analysis centres;

5. Provide for exchange of IGOSS data in GF-3 format with other RNODC's or to users as requested;

6. Transmit datasets in GF-3 format, inventories of archived data, and selected data products to the WDC's annually;

7. Provide for exchange of documentation and software regarding quality control and processing procedures with other RNODC's, as possible;

8. Participate in efforts to monitor data flow, and participate, as feasible, in IOC training programmes;

9. Prepare inventories of available data sets for the RNODC's area of interest and transmit them to the IOC Secretariat semiannually.

RNODC/IGOSS-Japan

The RNODC/IGOSS-Japan is operated by the Japan Oceanographic Data Center (JODC), with support from the Japan Meteorological Agency (JMA), which serves as a Specialized Oceanographic Center (SOC) for IGOSS. At the SOC, systematic quality control of the collected BATHY/TESAC reports is made. The SOC compiles the IGOSS monthly summaries including maps showing the geographical distribution of BATHY/TESAC messages and numbers of messages of individual ships and sends them to the Secretariat of the IOC.

IGOSS data submitted by the SOC are stored in three formats at the RNODC/IGOSS. The first includes the original data file compiled on a semiannual basis. This file contains the collected and processed data from the GTS and other operational sources within the area of responsibility. The second contains the data and data inventory files recorded in a form of the SYNDARC Format, and is available to users as computer-generated data summaries, statistical presentations, and graphical plots, or in a medium which allows the user to further process the data using a personal computer. During the conversion process, minimum quality control procedures are applied to the original data based on IOC Manuals and Guides No. 3. The third is the JODC-formatted version of the data inventory file. From this file, data products such as data summaries and location plots of observations are provided to users, as well as to the IOC and WMO.

RNODC/IGOSS-U.S.S.R.

The RNODC/IGOSS-U.S.S.R. and SOC for IGOSS data was established in 1984 under the auspices of the All-Union Scientific Research Center for Hydrometeorological Information and Hydrometeorological Scientific Research Center of the USSR (Hydrometcentre USSR). The responsibilities of the RNODC/IGOSS include the collection of BATHY/TESAC messages and logs, quality control of the data, preparation of data sets on magnetic tape, and the development of products concerning availability and time-space data distribution. The RNODC/IGOSS also provides national and international users with copies of data, results of analyses, and with other products for its area of responsibility.

The responsibilities of the SOC include preparation, publication, and distribution of different types of operational oceanographic products on a regular basis including those distributed via FAX machines that are readily available to different groups of users.

These activities are carried out in accordance with the procedures spelled out in the IOC's Guide to Operational Procedures for the Collection and Exchange of Oceanographic Data (BATHY and TESAC), 1985 and the Guide to the IGOSS Data Processing and Services System, 1983.

RNODC/IGOSS-U.S.

The RNODC/IGOSS-U.S., located at the National Oceanographic Data Center (NODC), receives near real-time data weekly from the Ocean Products Center at Suitland, Maryland and the Ocean Applications Group in Monterey, California. These data are extracted from the Global Telecommunications System (GTS) on a daily basis for screening and editing. At the RNODC, the magnetic tapes containing the near real-time data sent by the two organizations are run through a series of computer programs to convert the data into NODC's Universal Bathythermograph (UBT) format. This data set is next sorted by date, time, position, and an indicator of the source of the data. The sorted file is then compared with existing observations and duplicates are eliminated.

The records retained are then sorted by reference number, date, and time to produce a cruise-ordered data set. From this final data set, inventory records are created and applied to NODC's Data Inventory Data Base (DINDB). These data are then merged into the RNODC/IGOSS Archive. The Archive is updated on a monthly basis in geographical sequence.

Data in the U.S. RNODC/IGOSS Archive are then available for international exchange and can be provided to users in a variety of forms ranging from magnetic tape copies to computer-generated data summaries, statistical analyses, and graphic plots.

Availability of IGOSS Data and Products through WDC A, Oceanography

Various RNODC/IGOSS data, analyses, and products are available through WDC-A, Oceanography. Upon request, WDC-A will provide magnetic tape copies of pertinent data products, or, alternatively, refer the requester to the appropriate IGOSS data source.

RNODC FOR DRIFTING BUOYS

Background

The Marine Environmental Data Service (MEDS) began operation of the RNODC/Drifting Buoy Data in January 1986. The RNODC acquires Drifting Buoy Data from worldwide sources, makes the data available to international scientific programs, and prepares geographical plots of Drifting Buoy locations and tracks for the world oceans on a monthly basis. The RNODC also provides monthly statistics of operational buoys and the number of messages received from them.

Acquisition of Drifting Buoy Data

There are three procedures by which Drifting Buoy Data are received by the RNODC. The first and more traditional is for the principal investigator to submit his data directly to the RNODC, or to his National Oceanographic Data Centre which in turn submits the data to the RNODC. For historical data sets, this is the only option available. Data received in this way are usually of the highest quality, since they have undergone the most discriminating calibration and quality control procedures under the direction of the principal investigator; however, data entering the system in this manner are not sufficiently timely to meet the operational requirements of the major global science programs.

The second path for data flow to the RNODC is via the GTS. An advantage of this procedure is that the data are available in time scales suitable for the operational requirements of researchers in programs such as TOGA and WOCE, as well as for other operational users such as meteorological forecasters. Data received in this way may be less accurate, because they have not been fully reviewed and assessed by the principal investigator. For drifting buoy data, there is also a problem in that using the DRIBU format on the GTS for some buoys may limit the data that can be transmitted, because of a requirement to restrict the information to 256 bits.

A third procedure involves retrieving the DRIBU data as they pass through Services ARGOS. Although these data still have not been reviewed and assessed by the principal investigator, they are an improvement over the GTS data in that both time of data and time of position are available to improve velocity calculations. Data received by Service ARGOS are stored on magnetic tape for a period of 90 days. After this time, the tapes are reused and the data then reside solely in the hands of the principal investigators. Canada and the United States have

agreed to share the cost of buying copies of these tapes for the RNODC. Data from a buoy can only be provided to the RNODC if the principal investigator has given consent in writing.

RNODC/Drifting Buoy Data Base

MEDS utilizes a hierarchical database, called System 2000, to store the drifting buoy data; because of the volume of data, each year of data is stored in its own data base. In order to provide services to users at all time scales and to have available at each time scale the best data available, the RNODC has decided to accept all data using the following hierarchical guidelines:

1. Where possible, Principal Investigators are requested to make their data available to other operational users and to the RNODC by having the data transmitted on the GTS. The RNODC will copy all available data from the GTS, quality control it, and update it into the data base on a weekly basis.

2. Principal Investigators are also requested to agree to have Service ARGOS provide a copy of their data to MEDS via tape each month whether or not those data have already been on the GTS. The data circulated on the GTS have only the one time included which poses a difficulty in calculating velocities. Thus, the tape data with the two times is an improvement to the database and will be used to replace the GTS data in the database. In addition, data will be picked up which could not be circulated on the GTS because of the format of the transmission from the buoy.

   If Service Argos has not already been supplied with the calibration constants, channel allocations, and algorithms, or has not been requested to make the conversions to physical units, there will be a requirement for the RNODC to obtain this information from the principal investigators. Principal investigators are reminded that if the sensor data cannot be made available, the position data itself is of value for the database.

3. Principal Investigators are requested to provide a copy of their Drifting Buoy Data either directly to the RNODC when the fully processed, quality controlled version is available, or to provide the data to their National Oceanographic Data Centre, where the RNODC will be requesting such data on a regular basis. Data received by this path will replace GTS or Service ARGOS versions of the data in the database.

By receiving data in the configuration set forth above, and replacing earlier, lower quality data as higher quality versions of the data arrive, the RNODC can offer

users a choice between timeliness and quality, as dictated by their particular requirements.

The RNODC recognizes that in some cases there exists a need to restrict distribution of data to protect a scientist's right to benefit first from collection activities carried out at a considerable effort and cost. It is noted that the large international experiments generally have data exchange agreements that state when the data are available to other participants and to those outside the program. The RNODC will honor such data exchange agreements and will, at a scientist's request, restrict further distribution of the data according to the terms of the pertinent agreement. In regard to data from individual scientists, bilateral agree-ments on further distribution of data for a period of up to two years can also be made, if necessary.

RNODC Services

As mentioned earlier, the RNODC maintains its drifting buoy in a data base structure. This provides maximum flexibility when meeting a request. While a number of different qualifiers may be used to retrieve data, the most common are area and time. Requesters may also specify all data or only those which have passed the quality control procedures. On output, the data can be written to magnetic tape in a standard subset of the GF3 formatting system or in some other agreed ad hoc character format if appropriate. In choosing the data format users should be aware that the GF3 Formatting System is supported by a powerful and growing software system which is available for many of the more widely used host computers.

Each month, the RNODC publishes a summary of the data it has received in real time; also produced are global maps of drifting buoy tracks for the previous month. These maps are issued regularly on a monthly basis. Anyone wishing to receive this summary, should contact the RNODC. There is no charge to receive this product.

To obtain the RNODC Drifting Buoy Data Set, requesters should contact one of the following:

RNODC for Drifting Buoy Data
Marine Environmental Data Service
Department of Fisheries and Oceans
200 Kent Street
Ottawa K1A 0E6 Canada

Telephone: 613-990-0268
Telex: 053-4428
Telemail: RNODC.DRIBU (Omnet)

World Data Center A,
Oceanography
NOAA
Washington, D.C. 20235 U.S.A.

Telephone: 202-606-4571
FAX: 202-606-4586
Telemail: NODC.WDCA (Omnet)

TOGA

TROPICAL OCEAN and GLOBAL ATMOSPHERE PROGRAMME
SEA LEVEL DATA SET

TOGA Background

A major component of the TOGA International Implementation Plan is the monitoring of the global atmosphere and the upper layers of the three tropical oceans during the ten-year period of 1985-1994. Existing meteorological and oceanographic observation systems have been maintained and expanded by TOGA while new networks have been installed in key locations. These observations along with available historical data will provide a description of the ocean-climate system and its variability from sub-seasonal to interannual scales.

TOGA Sea Level Center

The TOGA Project, realizing the importance of sea level data for reasearch in ocean dynamics and for the monitoring and prediction of oceanographic processes, has established a TOGA Sea Level Center at the University of Hawaii. It is the purpose of the Center to collect all sea level data taken by island-based and coastal tide gauges in the TOGA area between 30°N and 30°S during the ten years of the TOGA project, 1985 to 1994, and to make them available for research. The TOGA Sea Level Center also obtains and archives past sea level data for the same region, when they are made available from the originators. Hourly, daily, and monthly values are prepared and archived, the data are stored digitally on magnetic tape, and are passed on yearly to other TOGA data centers, to the Permanent Service for Mean Sea Level (PSMSL), and to the World Data Centers A, B, and D for Oceanography. The TOGA Sea Level Center also supports the Global Sea Level Observing System (GLOSS). The importance of sea level data has been enhanced by the need for calibration of satellite altimeters such as GEOSAT, and for the TOPEX mission planned for WOCE.

Joint Archive for Sea Level (JASL)

Through the creation of the Joint Archive for Sea Level (JASL) with the University of Hawaii, the National Oceanographic Data Center, serving as a Specialized Data Center, is providing data management for this effort and assisting in the acquisition, processing, quality assurance, archiving, and dissemination of the data. The Joint Archive for Sea Level submits sea level time series data updates to NODC on a yearly basis. These updates may include data from new stations, as well as previously unprocessed data from existing stations. In addition, the updates may include data previously submitted to NODC that have been reprocessed to improve data quality. Therefore, to update the sea level data files for a station already in the database, NODC completely replaces the data time series for that station with a new version that may include both new and reprocessed data.

Availability of JASL Data through WDC-A, Oceanography

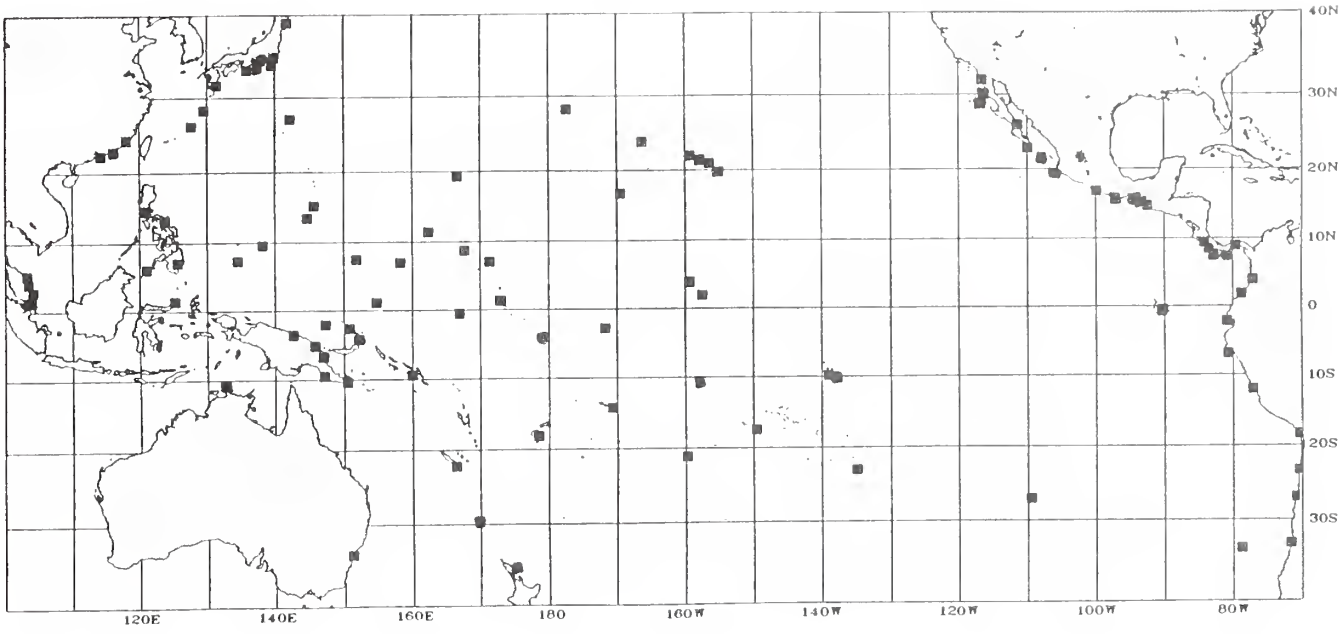
NODC maintains the JASL permanent archive of sea level data in three archive data files that contain hourly data, daily data, and monthly data. Data for the entire data base or selected subsets can be retrieved from these data files and provided to customers on magnetic tape or - for small data volumes - on a floppy disk at prices determined by data volume and output medium.

The JASL data set is available from:

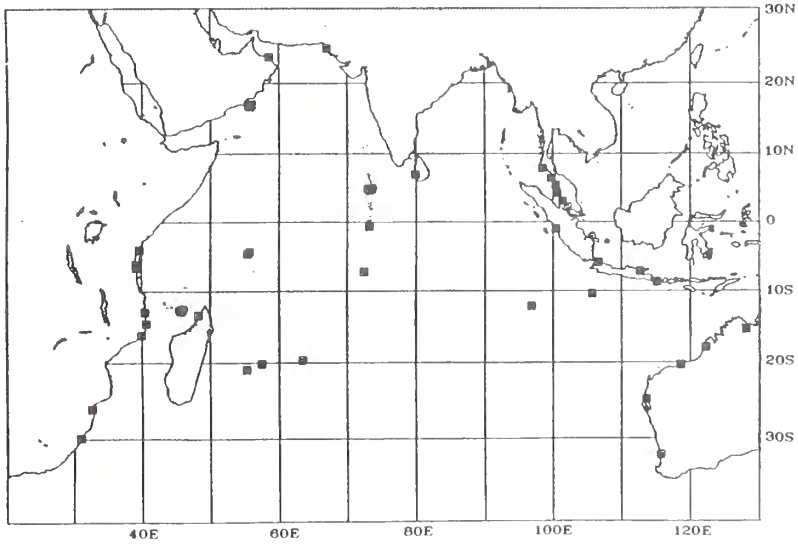
World Data Center A, Oceanography
National Oceanic and Atmospheric Administration
Washington, D.C. 20235 U.S.A.

Certain stations may have unresolved problems. These data are retained at the TOGA Sea Level Center and may be obtained on a case-by-case basis. For these data and for questions concerning data preparation contact:

The Joint Archive for Sea Level
c/o The TOGA Sea Level Center
University of Hawaii - MSB 316
1000 Pope Road
Honolulu, Hawaii 96734 U.S.A.



Pacific Ocean sea-level stations with quality-controlled data in the JASL archive



Indian Ocean sea-level stations with quality-controlled data in the JASL srchive

PART V

Catalogue of Pre-IGY Data

Oceanographic Station Data

Archived by WDC-A, Oceanography

for the Pre-1957 Period

CATALOGUE OF PRE-IGY DATA

The WDC-A, Oceanography Catalogue of Pre-IGY Data presents a summary of pre-1957 data accessioned on a one-time basis by WDC-A, Oceanography during 1992. Data were provided from the automated data base of the U.S. National Oceanographic Data Center (NODC), with which WDC-A, Oceanography is collocated. All pre-IGY data are of course available for exchange with data centers and scientists in the international oceanographic community.

Prior to this year, WDC-A, Oceanography had not extensively accessioned data gathered before the beginning of the IGY in 1957. Data for a few pre-IGY cruises considered to be important to the support of IGY research were accessioned in the Center's early years. Recently, several international bodies, such as the IOC/IODE's Group of Experts on RNODCs and Global Programs, had strongly recommended that the WDCs, Oceanography accession as much historical data as possible, in order to augment the data bases required for support of Climate Research and Global Change Programs. The decision was therefore made to acquire all currently available pre-IGY data. In the future, pre-1957 data will be accessioned, catalogued, and archived by WDC-A, Oceanography on a routine basis.

The new pre-IGY data set adds data for a total of 268,358 oceanographic stations (after adjustment for data previously held by WDC-A) to the international marine data base of WDC-A, Oceanography. Data were observed by 35 countries during 2,515 cruises; years data were observed range from 1899 to 1956. For convenience, and to conserve space, the cruises represented in the Catalogue were consolidated as to totals by ship; however, data sets are available in automated form for individual cruises.

CATALOGUE OF PRE-1957 OCEANOGRAPHIC STATION DATA
ARCHIVED BY WDC-A, OCEANOGRAPHY

COUNTRY / SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
ARAB REPUBLIC OF EGYPT			
TEIREL BAHR	1928-1929	2	12
UNKNOWN	1928-1929	2	24
4 CRUISES 36 STATIONS FOR ARAB REPUBLIC OF EGYPT			
ARGENTINA			
ALFEREZ MACKINLAY	1928	1	4
SAN JUAN	1928-1929	2	37
SAN LUIS	1928	1	3
GENERAL SAN MARTIN	1954-1955	2	35
6 CRUISES 79 STATIONS FOR ARGENTINA			
AUSTRALIA			
DERWENT HUNTER	1954-1956	3	293
UNKNOWN	1942-1957	6	1,508
WARREEN	1938-1950	3	538
WARREGO	1954	1	3
13 CRUISES 2,342 STATIONS FOR AUSTRALIA			
BELGIUM			
BELGICA	1905	1	47
HINDER	1956	1	50
UNKNOWN	1903-1955	14	935
VICTOR BILLET	1951-1952	1	38
VICTORIE	1933-1934	2	31
VILLE D'ANVERS	1913	1	18
WESTHINDER L/S	1932-1938	7	213
ZINNIA	1932-1938	7	261
34 CRUISES 1,593 STATIONS FOR BELGIUM			
BRAZIL			
IGARATY	1954	1	9
SOLIMOES	1956	1	112
2 CRUISES 121 STATIONS FOR BRAZIL			

CATALOGUE OF PRE-1957 OCEANOGRAPHIC STATION DATA ARCHIVED BY WDC-A, OCEANOGRAPHY

COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
CANADA				
	ACADIA	1915-1953	4	126
	ARMENTIERES	1936-1938	2	413
	BLUE DOLPHIN	1949-1958	2	503
	CALANUS	1949-1954	1	87
	CANCOLIM II	1951-1958	3	514
	CEDARWOOD	1950-1956	8	680
	DOROTHY	1927-1928	1	27
	EHKOLI	1948-1956	7	1,273
	GRAMPUS	1913	1	5
	INVESTIGATOR II	1952-1956	15	510
	JONQUIERE	1955	1	137
	A. P. KNIGHT	1930-1932	1	201
	LABRADOR	1954-1956	4	537
	MARINUS	1955-1956	2	38
	NEW GLASCOW	1956	1	84
	PANDALUS	1955-1962	1	153
	PRINCE	1916-1950	6	66
	PRINCESS	1915	1	50
	SACKVILLE	1955	1	21
	SAULT ST MARIE	1952	1	29
	ST. THERESE	1955	1	72
	W. M. STEWART	1950	1	18
	UNKNOWN	1934-1956	38	2,001
	103 CRUISES 7,545 STATIONS RECEIVED FOR CANADA			
CHILE				
	ARAUCO II	1948-1949	1	30
	1 CRUISE 30 STATIONS RECEIVED FOR CHILE			
DENMARK				
	ADOLF JENSEN	1946-1956	7	127
	ALVILDE	1947	1	2
	BIOLOGEN	1932-1956	18	2,425
	CHRISTIANSO C/S	1949-1956	7	65
	CODAN	1940-1947	8	53
	DANA/DANA II	1920-1956	21	3,839
	DANMARK	1906-1908	1	75
	EVA THINNESEN	1946	1	30
	FIXED PLATFORM	1927-1931	5	99
	GALATHEA	1950-1953	1	258

COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
DENMARK (continued)				
	GODTHAAB	1928-1945	5	264
	GRETHE KNOPPER	1937	1	7
	HAVKATTEN	1948	1	16
	HEIMDAL	1936-1950	9	185
	HOLGER DANSKE	1947	1	10
	HVIDBJORNEN	1934-1938	5	99
	IMMANUEL	1953-1956	3	14
	INGOLF	1934	1	7
	JAPETUS STEENSTRUP	1928-1948	5	519
	JENS VAEVER	1950-1956	6	404
	KIVOK	1933	1	24
	MAAGEN	1934	1	3
	MARGRETHE	1913-1914	1	43
	MORTENSEN, P. V.	1948-1953	3	117
	RESEARCH VESSELS IN GREENLAND	1947-1954	19	426
	SINNE BJERREGAARD	1949	1	36
	STEADY	1937	1	30
	THETIS	1952-1956	4	259
	THOR	1903-1936	5	474
	UNKNOWN	1902-1933	14	1,756
	VIKING	1913-1914	1	32
158 CRUISES 11,698 STATIONS RECEIVED FOR DENMARK				
FINLAND				
	ARANDA	1939-1956	7	2,461
	NAUTILUS	1920-1938	18	1,269
	UNKNOWN	1899-1946	33	22,443
58 CRUISES 26,173 STATIONS RECEIVED FOR FINLAND				
FRANCE				
	AILETTE	1934-1956	11	266
	AMIRAL MOUCHEZ	1954	1	19
	ANDRE LOUIS	1934	1	5
	ARDENT	1933	1	48
	ARRAS	1928	1	12
	AVENTURE	1948-1955	8	390
	BERCEUSE	1947	1	5
	CALYPSO	1952-1956	3	220
	ELIE MONNIER	1952-1955	4	73
	ENGAGEANTE	1921-1926	4	107

CATALOGUE OF PRE-1957 OCEANOGRAPHIC STATION DATA
ARCHIVED BY WDC-A, OCEANOGRAPHY

COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
FRANCE (continued)				
	ESTAFETTE	1926-1931	3	123
	HEBE	1926	1	21
	L'ORSOM II	1953	1	21
	LA PLACE	1950	1	14
	LACAZE DUTHIERS	1953	1	20
	MAMELUCK	1949-1950	1	93
	MERMOZ	1950	1	3
	NOOUNDI III	1948-1949	1	118
	NORSEL	1955-1956	1	20
	PETREL	1921-1929	3	36
	POURQUOI PAS	1921-1929	6	107
	PRESIDENT T. TISSIER	1933-1956	12	2,874
	QUENTIN ROOSEVELT	1936-1938	3	273
	SANDETTIE	1936	1	24
	SENTINELLE	1928-1932	4	83
	TADORNE	1925	1	29
	TANCHE	1921-1928	7	355
	TEMERAIRE	1923	1	12
	UNKNOWN	1921-1958	37	1,106
	VAILLANTE	1926	1	12
	VIERGE DE BOULOGNE	1935	1	2
	VILLE D'YS	1934-1938	3	86
126 CRUISES 6,577 STATIONS RECEIVED FOR FRANCE				
GERMANY				
	ALTAIR	1938	2	190
	AUGUSTA	1924-1939	16	1,268
	BAUMGARTEN, H.	1938	2	134
	BOERGEN	1942-1945	3	373
	BORKUMRIFF (LV)	1955	1	152
	DEUTSCHLAND	1911-1912	1	81
	DOHRN, A.	1946-1956	5	1,025
	FEHMARNBELT (LV)	1936-1937	2	329
	FREYMANN, A.	1949	1	18
	GAUSS	1950-1956	7	719
	KOLMAR	1940-1944	4	1,040
	MAKRELE	1937-1939	6	273
	METEOR	1925-1938	5	813
	MOWE	1911-1912	1	45
	OSTE	1936-1939	5	497
	PANTHER	1924	1	11
	PAUL BENEKE	1949	2	28
	PLANET	1906-1907	1	56
	POSEIDON	1914-1938	20	1,087

COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
GERMANY (continued)				
	S-2 BATEAU FEU	1951	1	81
	SKAGERAK	1922	1	34
	SUDFALL	1950-1956	17	962
	TRITON	1939	1	44
	UNKNOWN	1902-1956	45	2,749
	UTHOERN	1950-1955	2	61
	WANGEROOGE	1938	2	96
	WELLEM, JAN	1936-1937	1	68
	ZIETEN	1926	1	42
	156 CRUISES 12,276 STATIONS RECEIVED FOR GERMANY			
GREECE				
	ALKYONI	1949	1	62
	GLAFKI	1946-1947	2	155
	3 CRUISES 217 STATIONS RECEIVED FOR GREECE			
ICELAND				
	AEGIR	1954-1956	3	300
	FAXABOR	1951	1	92
	MARIA JULIA	1951-1955	5	462
	UNKNOWN	1934-1953	8	562
	17 CRUISES 1,416 STATIONS RECEIVED FOR ICELAND			
INDONESIA				
	SAMUDERA	1956	1	31
	SIBOELA	1949	1	56
	2 CRUISES 87 STATIONS RECEIVED FOR INDONESIA			
IRELAND				
	HELGA	1920-1922	2	121
	MIURCHU	1924-1939	16	857
	UNKNOWN	1905-1914	9	1,575
	27 CRUISES 2,553 STATIONS RECEIVED FOR IRELAND			

CATALOGUE OF PRE-1957 OCEANOGRAPHIC STATION DATA ARCHIVED BY WDC-A, OCEANOGRAPHY

COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
ISRAEL				
	HAZVI	1950-1956	7	690
	NISSAYAN	1947-1949	3	285
	10 CRUISES 975 STATIONS RECEIVED FOR ISRAEL			
ITALY				
	AMMIRAGLIO MAGNAHI	1923	1	311
	CICLOPE	1911-1914	4	574
	PRINCESS ALICE	1950-1952	1	78
	UNKNOWN	1911-1955	4	640
	10 CRUISES 1,603 STATIONS RECEIVED FOR ITALY			
IVORY COAST				
	LA CORYPHENE	1956-1959	1	137
	1 CRUISE 137 STATIONS RECEIVED FOR IVORY COAST			
JAPAN				
	ABUKUMA	1953	1	11
	AKEBONO-MARU	1949	1	14
	AKITA-MARU	1935	1	6
	AMAMI	1939	1	18
	AOMORI-MARU	1935-1940	6	133
	ASACHIDORI	1956	1	18
	ASAHI-MARU	1950-1952	3	260
	ASAHI-MARU NO. 1	1953	1	135
	ASAKAZE-MARU	1949	1	27
	ASANAGI-MARU	1948-1950	5	165
	ASASHIO MARU	1947-1956	10	706
	ATSUMI	1955-1956	4	73
	AWA-MARU	1934-1938	4	78
	BANSYN-MARU NO. 83	1943	1	280
	CHIBA MARU	1950-1953	3	30
	CHIKUBA MARU	1948-1952	10	437
	CHOYO MARU NO. 13	1943	1	395
	CHOYO MARU NO. 15	1943	1	349
	DAIFUJI MARU	1956	1	37
	DAIKOKU-MARU	1948-1949	2	19
	DAITO-MARU	1949-1953	5	167

CATALOGUE OF PRE-1957 OCEANOGRAPHIC STATION DATA ARCHIVED BY WDC-A, OCEANOGRAPHY

COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
JAPAN (continued)				
	FUGEN MARU	1947	1	9
	FUJI	1935	1	4
	FUJI-MARU	1934-1951	4	71
	FUKIMAYA MARU	1952	1	9
	FUSA MARU	1931-1950	11	331
	GEIYO-MARU	1942	1	42
	HACHIKO MARU	1950	1	72
	HAKUYO-MARU	1939-1942	5	301
	HAMAEI-MARU	1948	1	18
	HATSUTAKA MARU	1933-1949	6	366
	HISHO	1933-1942	6	228
	HYUGA-MARU	1934-1941	8	101
	IBARAGI-MARU	1935-1953	10	289
	IKUNA-MARU	1948-1953	9	450
	IKURU-MARU	1949	1	16
	ISHIKARI	1940	1	51
	ITSUKUSHIMA	1935-1938	2	53
	IWAKI-MARU	1935-1953	10	641
	IWATE-MARU	1935-1953	8	418
	JOBAN	1950	1	19
	KAGOSHIMA MARU	1955-1956	2	38
	KAIHO-MARU	1938-1941	4	175
	KAIKO-MARU	1950	2	75
	KAIYO-MARU	1943-1953	3	496
	KAIYO-MARU NO. 1	1940-1943	6	1,212
	KAIYO-MARU NO. 2	1940-1943	7	1,304
	KAIYO-MARU NO. 3	1942	1	66
	KAIYO-MARU NO. 4	1942-1956	18	2,111
	KAIYO-MARU NO. 5	1942-1951	9	1,048
	KAMOI-MARU	1934-1939	7	144
	KATASHIMA MARU	1942	1	25
	KATSURIKI	1935-1941	3	620
	KAWACHIDORI	1954-1955	2	83
	KEITEN-MARU	1955-1956	2	59
	KIJI	1953	1	19
	KISO	1955-1956	2	39
	KITAKAMI	1956	1	15
	KITAKAMI-MARU	1951-1953	3	103
	KIYO	1934-1941	6	101
	KOCHI MARU	1939-1941	3	46
	KOHO-MARU	1934-1937	3	112
	KOMAHASHI	1931-1939	4	2,907
	KOSHI MARU	1948-1951	4	97
	KOSHU MARU	1927-1938	6	1,127
	KOYO-MARU	1956	6	122
	KOYOSHI MARU	1954	1	46

CATALOGUE OF PRE-1957 OCEANOGRAPHIC STATION DATA ARCHIVED BY WDC-A, OCEANOGRAPHY

COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
JAPAN (continued)				
	KUROKAMI-MARU	1942	1	37
	KUROSHIO MARU	1947-1956	16	1,160
	KUZURYU	1954-1956	4	92
	KYO-MARU NO. 1	1950	1	47
	KYO-MARU NO. 6	1939	2	122
	KYO-MARU NO. 7	1939	1	107
	KYO-MARU NO. 8	1939-1940	2	133
	KYO-MARU NO. 10	1939	1	71
	KYOSEI-MARU	1949-1953	4	200
	MANSHU	1928-1930	2	291
	MATSUE	1923-1925	1	82
	MEIYO-MARU	1954-1956	4	515
	MIOCHIDORI	1954	1	19
	MIURA	1954-1956	2	57
	MIYAGI-MARU	1939-1941	3	96
	MOGAMI	1935-1956	7	244
	MOGAMI-MARU	1934-1939	3	61
	MUSASHI MARU	1938-1949	3	46
	MYOGA-MARU	1938	1	15
	MYOKO-MARU	1934-1953	3	122
	NANAO-MARU	1948	1	11
	OJIKA	1955-1956	2	42
	OKUSHIRI	1950-1956	2	75
	OSHORO MARU	1935-1939	6	450
	OTOMARI	1938-1939	1	84
	OYASHIO MARU	1947-1956	12	687
	OYODO	1955-1956	2	9
	RYOFU MARU	1942-1956	17	966
	SADO	1956	1	15
	SAGAMI-MARU	1934-1956	11	192
	SANYO-MARU	1937-1943	4	344
	SATSUMA	1955-1956	4	163
	SAWACHIDORI	1954	1	26
	SEIFU MARU	1955-1956	3	125
	SEIYO-MARU	1952	1	35
	SETTSU-MARU	1952	1	23
	SHICHISEI MARU	1934-1939	4	34
	SHIGA MARU	1951-1952	4	206
	SHIGU MARU	1951	1	29
	SHINANO	1954-1956	2	122
	SHINNAN-MARU	1948-1952	9	453
	SHINYO MARU	1943-1955	3	175
	SHIRATORI MARU	1938-1941	4	71
	SHONAN MARU (KAGOSHIMA)	1939	1	29
	SHONAN MARU NO. 1	1935-1940	2	78
	SHONAN MARU NO. 3	1941	1	76

CATALOGUE OF PRE-1957 OCEANOGRAPHIC STATION DATA ARCHIVED BY WDC-A, OCEANOGRAPHY

COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
JAPAN (continued)				
	SHONAN MARU NO. 6	1940-1941	2	130
	SHONAN MARU NO. 7	1941	1	53
	SHONAN MARU NO. 8	1941	1	49
	SHOYO MARU	1954-1956	3	269
	SHUMPU MARU	1947-1956	16	1,560
	SHUNKOTSU MARU	1940-1956	5	178
	SHUSIMA MARU	1951	1	15
	SOEI-MARU	1951	2	37
	SOYO-MARU	1938-1958	11	1,236
	TAIHO-MARU	1948	1	9
	TAKAO-MARU	1935	1	27
	TAKUNAN-MARU NO. 1	1939	1	61
	TAKUNAN-MARU NO. 2	1939	1	72
	TAKUNAN-MARU NO. 3	1939-1940	2	140
	TAKUNAN-MARU NO. 5	1940	1	59
	TAKUNAN-MARU NO. 8	1939	1	66
	TAKUNAN-MARU NO. 10	1939	1	71
	TAMA-MARU	1938-1940	2	87
	TAMA-MARU NO. 2	1938-1941	2	70
	TAMA-MARU NO. 3	1938-1939	1	104
	TAMA-MARU NO. 5	1938-1939	2	60
	TAMA-MARU NO. 6	1938-1940	2	94
	TAMA-MARU NO. 7	1939	1	25
	TANKAI-MARU	1939-1942	5	113
	TATEYAMA-MARU	1935	1	19
	TENKAI-MARU NO. 1	1945-1956	8	312
	TENRYO	1954-1956	2	137
	TENYO	1955	1	53
	TOKAIDAIGAKU MARU II	1939	1	21
	TONAN-MARU	1937-1939	6	85
	TONE	1955-1956	2	81
	TOSHI MARU	1940	1	45
	TOSHI MARU NO. 2	1939-1941	2	112
	TOSHI MARU NO. 5	1941	1	53
	TOSHI MARU NO. 7	1939-1941	2	141
	TOYAMA-MARU	1941-1943	3	510
	TSUGARU	1954-1956	4	132
	TSURU MARU	1935-1952	8	270
	UKURU-MARU	1948-1952	10	394
	UMIKAZE-MARU	1949-1956	11	1,145
	UMITAKA-MARU	1955-1957	4	160
	UNKNOWN	1933-1956	33	26,481
	UNRYO-MARU	1948	1	11
	UZURA	1953	1	42
	YAMATO	1932-1936	1	168
	YODO	1928	2	121

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COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
JAPAN (continued)				
	YOKO-MARU	1941-1942	2	336
	YUKARI	1952-1953	1	68
	YUSHIO MARU	1947-1956	16	974
	ZUIHO	1938-1939	3	104
	613 CRUISES 63,735 STATIONS RECEIVED FOR JAPAN			
KOREA, REPUBLIC OF				
	MISAGO	1930-1934	2	954
	2 CRUISES 954 STATIONS RECEIVED FOR KOREA, REPUBLIC OF			
NETHERLANDS				
	ANTON VAN LEEUWENHOEK	1949-1955	7	513
	CIRRUS	1955	1	69
	CUMULUS	1954	1	145
	NAUTILUS	1930-1937	8	246
	SOEMBA	1948	1	13
	TEXEL L/S	1955	1	120
	UNKNOWN	1902-1956	27	1,104
	WILLEBROD SNELLIUS	1929-1930	1	532
	WODAN	1913-1914	2	62
	49 CRUISES 2,804 STATIONS RECEIVED FOR NETHERLANDS			
NEW CALEDONIA				
	L'ORSOM III	1956	2	42
	2 CRUISES 42 STATIONS RECEIVED FOR NEW CALEDONIA			
NEW ZEALAND				
	HAWEA	1956-1957	1	27
	PUKAKI	1956-1957	1	9
	TUI	1956-1957	1	44
	UNKNOWN	1954-1955	2	262
	5 CRUISES 342 STATIONS RECEIVED FOR NEW ZEALAND			

CATALOGUE OF PRE-1957 OCEANOGRAPHIC STATION DATA ARCHIVED BY WDC-A, OCEANOGRAPHY

COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
NORWAY				
	ARMAURR HANSEN	1913-1949	15	1,822
	BLAAJELD	1923	2	67
	BLUE JACKET	1929	1	13
	BORGENES	1932-1933	2	157
	BRILLIANT	1940	1	12
	DANNEVIG, G. M.	1950-1956	7	1,120
	EGLANTINE	1946	1	13
	EIKEN	1938	1	7
	ESKIMO	1943-1945	3	67
	FRAM	1910-1925	2	101
	FRO I	1937-1941	3	69
	G. O. SARS	1950-1956	7	2,949
	GJOA	1948-1950	3	28
	GRANME	1942	1	24
	GULAFJORD	1943	1	21
	HADYR	1949	1	29
	HERMANN FRIELE	1946-1950	3	32
	HISO	1929	1	74
	HOGVARD	1947	1	39
	HUSELAND	1935-1938	3	167
	IDUN	1946	1	4
	JANA	1947	1	10
	JOHAN HJORT	1923-1956	34	7,727
	KIRKHOLMEN	1928	1	57
	KOON HAAKON VII	1948	1	4
	KRILL	1951	1	19
	LINDY	1944	1	2
	LURA	1944	1	2
	MALM	1947	1	11
	MAUD	1918-1924	1	124
	MELAR	1945	1	8
	MORILD	1929-1930	1	72
	NOVEGIA	1927-1930	1	82
	POLARBJORN	1931	1	13
	POLARIS	1932	1	8
	QUEST	1931	1	134
	RAPPMOTOR	1942	1	18
	RINGSAEL	1922	1	26
	SARS, MICHAEL	1910-1931	5	236
	SEIRA	1949	1	58
	SIGNAL	1945	1	27
	SOLVEIG I	1937-1946	4	243
	SOTRA	1929-1931	4	436
	SVANEN	1944	1	15
	SVINTO	1944	1	5

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COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
NORWAY (continued)				
	THORSHAVN	1933-1934	1	23
	TOVIK	1924-1925	2	108
	UNKNOWN	1900-1956	23	1,625
	URAN	1947-1948	2	111
	VESLEKARI	1930	1	10
	VESLEMOY	1912	1	69
	VIRGO	1933-1939	5	143
	VON	1940-1941	2	53
	164 CRUISES 18,294 STATIONS RECEIVED FOR NORWAY			
PEOPLES REPUBLIC OF CONGO				
	OMBANGO	1954-1955	1	15
	1 CRUISE 15 STATIONS RECEIVED FOR PEOPLES REPUBLIC OF CONGO			
POLAND				
	UNKNOWN	1928-1956	11	995
	11 CRUISES 995 STATIONS RECEIVED FOR POLAND			
PORTUGAL				
	ALBACORA	1925-1940	12	1,477
	BOLDAQUE DA SILVA	1952-1953	2	50
	CINCO DE OUTUBRO	1923	1	77
	UNKNOWN	1933-1940	2	3
	17 CRUISES 1,607 STATIONS RECEIVED FOR PORTUGAL			
RUSSIAN FEDERATION				
	AISBERG	1956-1959	1	82
	ANDREEW, S.	1956	2	39
	ANDREI PERWOZWANNY	1900-1906	2	124
	ARKTIK	1933	1	6
	HIDROGRAFS	1932-1939	7	208
	KARBAS	1933	1	9
	KRASNOAMEYETS	1933	1	119
	LITKE	1932-1934	2	36
	LOOD (SEKSTANT)	1930-1956	8	170

COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
RUSSIAN FEDERATION (continued)				
	MALYGIN, S.	1921-1931	2	14
	OB	1956	1	147
	OTKUPSCHIKOV	1956	2	122
	PERSEI	1923-1929	2	135
	POLYARNIK	1956	2	176
	RUDOVITS, PROF.	1956	1	35
	SEDOV, G.	1930	1	25
	SLAVA 15	1950-1958	1	304
	SOMOV, M.	1956	2	45
	SOOTCHAN	1932	1	2
	SOVIET	1932	1	35
	SRT-4234 "LOMONOSOV"	1956	1	9
	SRT-4379 "ARAGATS"	1956	1	4
	TAIMEER	1921	1	2
	TOPSEDA	1956	2	132
	UNKNOWN	1901-1954	15	3,380
	61 CRUISES 5,360 STATIONS RECEIVED FOR RUSSIAN FEDERATION			
SOUTH AFRICA				
	AFRICANA I	1932-1949	11	1,716
	AFRICANA II	1950-1957	7	2,310
	PANULIRUS	1948	1	192
	PICKLE	1920-1921	2	515
	PROTEA	1923-1929	2	198
	23 CRUISES 4,931 STATIONS RECEIVED FOR SOUTH AFRICA			
SPAIN				
	ALMIRANTE LOBO	1923	1	58
	AVERROES	1922	1	18
	EDUARDO DATO	1927	1	61
	LAYA	1929	1	19
	NUNEZ DE BALBOA	1914-1915	1	14
	XAUEN	1934-1956	4	490
	9 CRUISES 660 STATIONS RECEIVED FOR SPAIN			
SWEDEN				
	ALBATROSS	1947-1948	1	126
	EYSTRASALT	1939-1956	14	282

CATALOGUE OF PRE-1957 OCEANOGRAPHIC STATION DATA ARCHIVED BY WDC-A, OCEANOGRAPHY

COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
SWEDEN (continued)				
	FLADEN	1930	1	70
	SKAGERAK	1913-1956	24	1,516
	UNKNOWN	1902-1958	25	18,029
	65 CRUISES 20,023 STATIONS RECEIVED FOR SWEDEN			
THAILAND				
	FISHING VESSEL 9	1956	1	47
	1 CRUISES 47 STATIONS RECEIVED FOR THAILAND			
UNITED KINGDOM				
	ANGLO NORSE	1927-1928	2	12
	BEAUFORT	1929-1935	4	79
	BLIGH, GEORGE	1921-1939	16	2,577
	BOYNE	1931	1	32
	CHALLENGER	1932-1952	7	143
	CHERWELL	1929-1930	2	52
	CLIONE	1953	1	8
	CLUPEA	1948-1956	8	2,881
	CYPRIS	1954-1956	2	60
	DAMPIER	1948	1	10
	DISCOVERY/DISCOVERY II	1926-1951	9	1,941
	ELK	1938-1939	2	27
	EVADNE	1928-1931	4	234
	EXPLORER	1928-1956	24	6,178
	FLINDERS	1928-1929	2	26
	HERDMAN, W.	1953-1956	3	220
	HOLT, E.	1949-1956	8	2,316
	J & S MILES	1920-1921	2	199
	KATHLEEN	1948-1956	8	461
	KELLET	1929	1	12
	LARSON, C. A.	1928-1929	2	16
	MABAHISS	1933-1934	1	119
	MANIHINE	1949	1	17
	ONAWAY	1932-1939	8	205
	ORMOND	1929	1	8
	PLATESSA	1946-1956	5	64
	ROSEMARY	1929-1930	2	93
	SABELLA	1946-1953	8	209
	SALPA	1921-1939	20	550
	SARSIA	1954-1956	2	18

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COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
UNITED KINGDOM (continued)				
	SCORESBY, W.	1926-1950	8	843
	SCOTIA	1948-1956	8	3,164
	SILVER SCOUT	1952-1954	3	463
	SIR LANCELOT	1946-1956	10	1,534
	ST. GEORGE	1933	1	8
	SULA	1948-1956	8	54
	TERRA NOVA	1911	1	7
	UNKNOWN	1900-1955	20	6,647
	VIDAL	1955	1	91
	217 CRUISES	31,578 STATIONS RECEIVED FOR UNITED KINGDOM		
UNITED STATES				
	AIRCRAFT	1951-1952	1	7
	ALASKA	1951-1953	5	285
	ALBATROSS II	1919-1920	1	125
	ALBATROSS III	1952-1953	2	88
	ALLEGHENY	1951-1952	1	51
	ASTERIAS	1948-1950	4	285
	ATKA	1953-1956	7	188
	ATLANTIS I	1931-1956	32	5,023
	BACHE	1914	1	39
	BAIRD, S. F.	1947-1958	21	1,427
	BALANUS	1949	1	76
	BARTON	1946	1	17
	BEAR	1952-1956	4	105
	BILLIE	1952	1	90
	BLACK DOUGLAS	1949-1956	38	1,654
	BLISH	1949	1	17
	BLUE FIN	1937	1	82
	BOWDITCH	1946	1	35
	BRATTLEBORO	1954	1	7
	BROWN BEAR	1952-1956	15	2,528
	BROWNSON	1946-1947	1	27
	BURTON ISLAND	1950-1955	9	486
	BUSHNELL	1934	1	18
	CALVER	1938-1939	1	100
	CANISTEO	1947	1	15
	CARNEGIE	1928-1929	1	162
	CARYN	1954-1956	3	59
	CELTIC	1956	1	42
	COBB, J. N.	1955-1956	2	53
	CRAWFORD	1956	3	97
	CREST	1949-1955	60	2,744

CATALOGUE OF PRE-1957 OCEANOGRAPHIC STATION DATA ARCHIVED BY WDC-A, OCEANOGRAPHY

COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
UNITED STATES (continued)				
	EASTWIND	1948-1956	2	32
	EDISTO	1950-1956	7	246
	ELDORADO	1956	1	1
	EVERGREEN	1948-1956	9	2,759
	EXPLORER	1954-1956	2	2
	FISH HAWK	1920-1922	1	642
	FIXED STATIONS	1951-1955	1	219
	GANNET	1933	1	5
	GERDA	1955-1956	1	38
	GILBERT, C. H.	1954	1	40
	GILL, T. N.	1952-1954	24	765
	GLACIER	1956-1957	2	20
	GREENE, GEN.	1931-1941	9	1,725
	HANNIBAL	1933-1936	3	171
	HORIZON	1949-1956	47	2,052
	HYDROGRAPHER	1953-1955	2	33
	ICE ISLAND (T-3)	1952-1955	1	22
	LAFFEY	1946	1	46
	LIL-JOY	1951-1952	3	281
	LYDIA LOUISE	1949-1950	2	76
	MARYSVILLE	1950-1952	2	74
	MAURY (JOHNS HOPKINS)	1950	1	1
	MAURY (NAVOCEANO)	1949-1950	4	367
	MITKOF	1955-1956	2	69
	NAUTILUS	1931	1	9
	NEREUS	1947	1	41
	NORTHLAND	1937-1938	1	373
	NORTHWIND	1948-1955	4	162
	O'BRIEN	1946	1	52
	OGLALA	1935	1	23
	ONCORHYCHUS	1949-1953	2	163
	PANULIRUS	1954-1982	2	713
	PAOLINA-T	1950-1956	28	852
	PARAGON	1955-1956	2	63
	PARKER	1951-1953	6	293
	PATHFINDER	1953-1955	3	13
	PIONEER	1953	1	11
	PURSUIT	1953	2	72
	RED WING	1934-1941	2	720
	REHOBOTH	1949-1955	14	706
	REQUISITE	1956	1	29
	SAN PABLO	1949-1954	13	632
	SCOFIELD, N. B.	1949-1954	6	203
	SCRIPPS, E. W.	1938-1954	18	1,119
	SERRANO	1948-1949	3	113
	SHELDRAKE	1952-1953	1	31

COUNTRY	SHIP	YEARS OF DATA COLLECTION (RANGE)	NO. OF CRUISES	NO. OF STATIONS
UNITED STATES (continued)				
	SMITH, H. M.	1949-1956	20	984
	STALLION	1953	1	8
	STATEN ISLAND	1955-1957	2	42
	STIRNI	1951-1952	1	447
	STRANGER	1955-1956	7	355
	TAGE	1954-1956	3	738
	TANEY, R. B.	1955	1	47
	TANNER	1952	1	12
	TAYLOR, M.	1932	1	75
	TORDENSKJOLD	1956	1	91
	UNKNOWN	1912-1956	26	4,395
	VARIOUS SMALL NAVY VESSELS	1956	2	122
	VELERO III AND IV	1934-1956	2	18
	WALKE	1946	1	54
	YANKTON	1954	1	45
	YELLOWFIN	1951-1956	6	240
	540 CRUISES 39,684 STATIONS RECEIVED FOR UNITED STATES			
YUGOSLAVIA				
	HVAR	1948-1949	1	306
	UNKNOWN	1947-1956	3	2,579
	4 CRUISES 2,885 STATIONS RECEIVED FOR YUGOSLAVIA			

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